studío beam™ PC

User Manual

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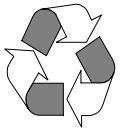

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Declaration of Conformity

according to ISO/IEC Guide 22 and EN45104

Manufacturer's name: High End Systems, Inc.
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Distributor's name: High End Systems, Inc.
Distributor's address: 2217 West Braker Lane
Austin, Texas 78758 USA

Declares that the product

Product Name: Studio Beam PC
Product Number: All
Product Options: All

conforms to the following EEC directives:
73/23/EEC, as amended by 93/68/EEC
89/336/EEC, as amended by 92/31/EEC and 93/68/EEC

Equipment referred to in this declaration of conformity was first manufactured in compliance with the following standards in 2000:

Safety:
EN 60598-1 : 1993
EN 60598-2-17 ; 1989
A1-A3 : 1993

EMC:
EN 55022, 1994 Class A ITE
EN 61000-4-2 : 1995 Level 2/3 (4/8kV)
EN 61000-4-3 : 1995 Level 2 (3 V/m)
EN 50204 : 1996 Level 2 (3 V/m)
EN 61000-4-4 : 1995 Level 2 (1/.5 kV)
EN 61000-4-5 : 1995 Level 3 (2/1 kV)
EN 61000-4-6 : 1996 Level 2 (3VRMS)
EN 61000-4-11 : 1994
EN 61000-3-2 : 1995
EN 61000-3-3 : 1994

USA, June 02, 2000
Kenneth Stuart Hansen, Compliance Engineer

Important Safety Information

Instructions pertaining to continued protection against fire, electric shock, exposure to excessive ultraviolet (UV) radiation, and injury to persons are found in Appendix B.

Please read all instructions prior to assembling, mounting, and operating this equipment.

Important: Informations De Sécurité
Les instructions se rapportant à la protection permanente contre les incendies, l'électrocution, l'exposition à un rayonnement ultraviolet (UV) excessif et aux blessures corporelles se trouvent dans l'Annexe B.

Veuillez lire toutes les instructions avant d'assembler, de monter ou d'utiliser cet équipement.

Wichtige Sicherheitshinweise
Sicherheitsanleitungen zum Schutz gegen Feuer, elektrischen Schlag, übermäßige UV-Strahlung und Verletzung von Personen finden Sie in Anhang B.

Vor der Montage, dem Zusammenbau und der Intbetriebnahme dieses Geräts alle Anleitungen sorgfältig durchlesen.

Informazioni Importanti Di Sicurezza
Le istruzioni sulla protezione da incendi, folgorazione, esposizione eccessiva a raggi ultravioletti (UV) e infortuni sono contenute nell'appendice B.

Si prega di leggere tutte le istruzioni prima di assemblare, montare e azionare l'apparecchiatura.

Informacion Importante De Seguridad
En el Apéndice B se encuentran instrucciones sobre protección continua contra incendios, descarga eléctrica, exposición excesiva a radiación ultravioleta (UV) y lesiones personales.

Lea, por favor, todas las instrucciones antes del ensamblaje, montaje y operación de este equipo.

Product Modification Warning

High End Systems products are designed and manufactured to meet the requirements of United States and International safety regulations. Modifications to the product could affect safety and render the product non-compliant to relevant safety standards.

Mise En Garde Contre La Modification Du Produit

Les produits High End Systems sont conçus et fabriqués conformément aux exigences des règlements internationaux de sécurité. Toute modification du produit peut entraîner sa non conformité aux normes de sécurité en vigueur.

Produktmodifikationswarnung

Design und Herstellung von High End Systems entsprechen den Anforderungen der U.S. Amerikanischen und internationalen Sicherheitsvorschriften. Abänderungen dieses Produktes können dessen Sicherheit beeinträchtigen und unter Umständen gegen die diesbezüglichen Sicherheitsnormen verstoßen.

Avvertenza Sulla Modifica Del Prodotto

I prodotti di High End Systems sono stati progettati e fabbricati per soddisfare i requisiti delle normative di sicurezza statunitensi ed internazionali. Qualsiasi modifica al prodotto potrebbe pregiudicare la sicurezza e rendere il prodotto non conforme agli standard di sicurezza pertinenti.

Advertencia De Modificación Del Producto

Los productos de High End Systems están diseñados y fabricados para cumplir los requisitos de las reglamentaciones de seguridad de los Estados Unidos e internacionales. Las modificaciones al producto podrían afectar la seguridad y dejar al producto fuera de conformidad con las normas de seguridad relevantes.

FCC Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Warranty Information

Limited Warranty

Unless otherwise stated, your product is covered by a two year parts and labor limited warranty. Dichroic filters and LithoPatterns® high resolution glass gobos are not guaranteed against breakage or scratches to coating. It is the owner's responsibility to furnish receipts or invoices for verification of purchase, date, and dealer or distributor. If purchase date cannot be provided, date of manufacture will be used to determine warranty period.

Returning an Item Under Warranty for Repair

It is necessary to obtain a Return Material Authorization (RMA) number from your dealer or point of purchase BEFORE any units are returned for repair. The manufacturer will make the final determination as to whether or not the unit is covered by warranty. Lamps are covered by the lamp manufacturer's warranty.

Any Product unit or parts returned to High End Systems must be packaged in a suitable manner to ensure the protection of such Product unit or parts, and such package shall be clearly and prominently marked to indicate that the package contains returned Product units or parts and with an RMA number. Accompany all returned Product units or parts with a written explanation of the alleged problem or malfunction. Ship returned Product units or parts to: 2227 West Braker Lane, Austin, TX 78758 USA.

Note: Freight Damage Claims are invalid for fixtures shipped in non-factory boxes and packing materials.

Freight

All shipping will be paid by the purchaser. Items under warranty shall have return shipping paid by the manufacturer only in the Continental United States. Under no circumstances will freight collect shipments be accepted. Prepaid shipping does not include rush expediting such as air freight. Air freight can be sent customer collect in the Continental United States.

REPAIR OR REPLACEMENT AS PROVIDED FOR UNDER THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE CONSUMER. HIGH END SYSTEMS, INC. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, WITH RESPECT TO ANY PRODUCT, AND HIGH END SPECIFICALLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. HIGH END SHALL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGE, INCLUDING LOST PROFITS, SUSTAINED OR INCURRED IN CONNECTION WITH ANY PRODUCT OR CAUSED BY PRODUCT DEFECTS OR THE PARTIAL OR TOTAL FAILURE OF ANY PRODUCT REGARDLESS OF THE FORM OF ACTION, WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, AND WHETHER OR NOT SUCH DAMAGE WAS FORESEEN OR UNFORESEEN.

Warranty is void if the product is misused, damaged, modified in any way, or for unauthorized repairs or parts. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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Introduction

Unlike a fresnel wash or ellipsoidal spot fixture, the Studio Beam PC™ is a third type of automated light featuring a Pebble Convex (PC) lens that produces a unique quality of light. This PC lens is similar to a fresnel lens in optical properties, but incorporates a diffusion pattern on its rear surface to produce a well-defined soft-edge beam without light spill.

Studio Beam PC features a new MSR 700 watt, short-arc lamp and a patented combination elliptical/spherical reflector to yield over 21,000 lumens. Never before has an automated luminaire offered this much light output in such a compact size and weight (47 lbs. with the same footprint as a Studio Color 250). The aspheric lens system provides a broad zoom range from 15° to 26°. Fitted with full CMY Color Mixing (with three additional discrete dichroic colors), Studio Beam PC also includes variable frost and a variable strobe that rivals speeds seen in dedicated strobe fixtures.

Studio Beam™ PC Features

- High efficiency reflector and optical train which can provide more than 21,000 total lumens.[1]
- 115mm Pebble Convex (PC) lens that provides a soft edge beam with no light spill and a blending curve output.
- MSR 700-watt, short arc lamp developed by Philips® in conjunction with High End Systems®, Inc.
- Motorized aspheric zoom lens system which allows a 15° to 26° beam angle.[2]
- Warm-start circuitry to allow for lamp restrike less than one minute after extinguishing.
- Universal power supply that automatically selects the appropriate voltage for the fixture (100V - 230V at 50-60 Hz).
- Subtractive color mixing system plus three additional discrete colors (CTO, deep red, and dark blue).
- Locking pan and tilt solenoids for easy transport and “known” shutdown position.
- Two user types (A and B) per fixture, each with an on-board 16 scene memory for a total of 32 scene memory per fixture in stand-alone mode.
- High-resolution DMX 512 control.
- On-board preset programming via the fixture’s menu system for stand-alone operation.

[1]With the aspheric zoom lens system installed, the fixture output is 17,000 lumens. Without the aspheric zoom lens, the fixture output is more than 21,000 lumens.

[2]All beam angles are accurate to ±1°

- Easy-to-program alphanumeric LED (light emitting diode) display.
- Motion range of 540° pan and 256° tilt.
- DMX macro channel factory-programmed with unique combinations of constructs including functions such as ballyhoos and lazy-eight movements.
- Both 3-pin and 5-pin XLR connectors.
- Factory-programmed fixture demo available as a preset default while in stand-alone mode.
- Exclusive High End Systems, Inc. multi-phase technology for stunningly fast, smooth, and quiet yoke movement.
- Enhanced frost and shutter construct parameters including ramp/snap, synchronous, and random functions.
- Optical encoders to automatically correct the beam's position if the fixture's head is jarred from its programmed position.[3]
- Rotatable, variable horizontal and vertical beam shaping.
- Time code synchronization in stand-alone mode via master/slave links to any combination of Technobeam®, Studio Spot™, Studio Color® 250, Studio Spot™ 250, and Studio Beam PC fixtures.
- Seemless, variable frost.
- Smooth full-field dimming without changing the color temperature or the beam shape.
- Variable strobe to 15.75 Hz.
- DMX analyzer for easy DMX troubleshooting.
- Lamp interlock that cuts the current to the lamp if the lamp cap is opened while the lamp is on.
- Full dimming and fade-to-black.
- LED status indicators.
- Precision stepper motors used to control iris, shutter, color, and effects wheels.
- Remote fixture power up and shut down.

[3]If a physical obstruction prevents the fixture from correcting its position, the fixture will "time out" to prevent wear on the motors. If your fixture has timed out, remove the obstruction and home the fixture to return it to normal operation. You can turn off this option using the fixture's on-board menu system (see "ENCD" in Table 2-2 on page 2-10).

Symbols

The following international caution and warning symbols appear in margins throughout this manual to highlight messages.

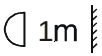
Caution: This symbol appears adjacent to Caution messages. Not heeding these messages could result in personal injury and/or damage to equipment.

Warning: This symbol appears adjacent to high voltage warning messages. Not heeding these messages could result in serious personal injury.

This symbol indicates that a fire hazard is present. Not heeding these messages could result in serious personal injury.

This symbol indicates that eye protection is required.

This symbol indicates an explosion hazard.



This symbol indicates the minimum distance to a lighted object, which in this case, is 1 meter.

This symbol indicates a hot surface.

Document Conventions

This manual uses the following conventions for menus and menu navigation buttons:

Example	Meaning
<Button>	Press the appropriate LED display navigation button on the fixture. For example, the <Enter> button on the fixture's LED display panel (see Figure 2-1 on page 2-9).
"Menu Option"	Quotation marks are used to indicate the appropriate menu selection you should choose from the on-board menu system. For example, the "ADDR" menu option.

Specifications

Physical Specifications

Height: 599.99 mm (23.62")
Width: 484.5 mm (19.08")
Depth: 295 mm (11.62")
Weight: 21 kg (47 lbs)

For additional dimensions, see Figure intro-1.

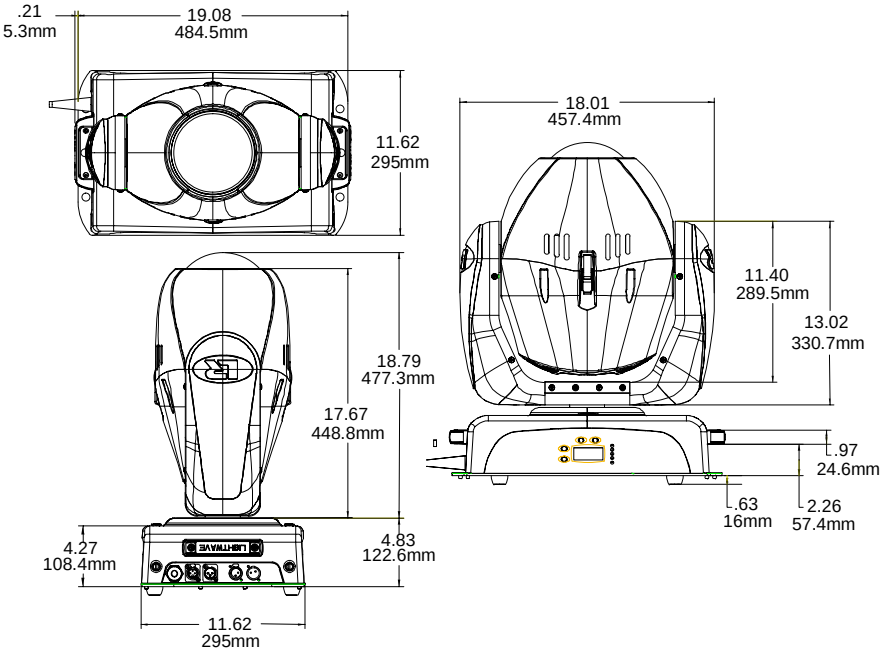


Figure intro-1. Studio Beam™ PC dimensions.

Electrical Specifications

Voltage Range: 100-230V, 50-60 Hz, 10-4.35 A

Power Consumption: 1000 W

Fuses:

Logic Board:
F1 - 2.5A, 250V, Slow Blow only (5 mm x 20 mm)
F2 - 2.5A, 250V, Slow Blow only (5 mm x 20 mm)

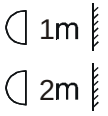
Motor Power Supply:
F1 - 6.3A, 250V, Slow Blow only (5 mm x 20 mm)
F2 - 6.3A, 250V, Fast Blow only (5 mm x 20 mm)

Filter Board:
F1 - 12.5A, 250V, Fast Blow only (5 mm x 20 mm)
F2 - 12.5A, 250V, Fast Blow only (5 mm x 20 mm)

Voltage Surge: A surge of 2000V or more may damage the power supply.

Warning: Class 1 equipment - This equipment must be earthed.

Environmental Specifications



Maximum ambient temperature, (T_a): 50° C (122° F)
Maximum exterior surface temperature: 90° C (194° F)
Minimum distance to flammable objects: 3.28 ft (1.0 m)
Minimum distance to lighted object: 6.56 ft (2.0 m)

Do not mount on a flammable surface.

Cable and Connector Specifications

DMX data cables:
Belden® 9841 or equivalent (meets specifications for EIA RS-485 applications) with the following characteristics:

- 2-conductor twisted pair plus a shield
- maximum capacitance between conductors - 30 pF/ft.
- maximum capacitance between conductor and shield - 55 pF/ft.
- maximum resistance of 20 Ω / 1000 ft.
- nominal impedance 100-140 Ω

DMX data connectors:
3-pin or 5-pin male and female XLR connectors

DMX data terminators:
Male XLR connector with 120 ohm terminator

Lamp Specifications

Lamp type: Philips® MSR 700W short arc
Color temperature: 5600 K

Optional Accessories

Table intro-1 lists the Studio Beam PC optional accessories available from your High End Systems dealer/distributor.

Table intro-1. Studio Beam™ PC Optional Accessories

Part Description	Part Number
Replacement MSR 700W short arc lamp	55030054
Male 3-pin XLR terminator	90404039
Heavy duty 3-pin XLR cable (10')	55050005
Heavy duty 3-pin XLR cable (25')	55050006
Heavy duty 3-pin XLR cable (50')	55050007
Heavy duty 3-pin XLR cable (100')	55050008
Heavy duty 5-pin XLR cable (10')	55050017

Table intro-1. Studio Beam™ PC Optional Accessories

Part Description	Part Number
Heavy duty 5-pin XLR cable (25')	55050018
Heavy duty 5-pin XLR cable (50')	55050019
Heavy duty 5-pin XLR cable (100')	55050020
Whole Hog® II Lighting Console	25020001
Status Cue® Lighting Console	22020002
Upload Dongle	26040002
Galvanized safety cable	12040001
Cheeseborough clamp	55040014
Road Case for Studio Beam PC	Call[1]

[1]For more information about optional accessories, contact either your High End Systems dealer/distributor, High End System Sales, or visit the High End Systems Web site. For contact information, see "Contacting High End Systems" on page ii.

Chapter 1
Setup and Installation

Unpacking the Fixture

Unpack your Studio Beam PC and verify that the fixture arrived without damage. Inspect both the outside of the fixture for physical damage and the inside of the fixture for damage to glass components.

To access the internal components, release the two bezel latches (one latch located on each side of the fixture's head) and remove the bezel (see Figure 1-1).

If the fixture is damaged, notify both the shipping agent and your sales agent immediately.

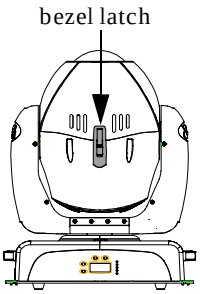


Figure 1-1. Removing the bezel.

Saving the Shipping Materials

Do not discard the shipping carton and packing materials. The carton and packing materials are specifically designed to protect the product during transport.

High End Systems assumes no responsibility for products that have been damaged during transport. Therefore, you should return a product for repair in its original shipping carton and packing materials.

Note: Before sending anything to the factory, call your High End Systems dealer/distributor for a Return Material Authorization (RMA) number. The factory cannot accept any goods shipped without an RMA number.

Changing the Attachment Plug

Studio Beam PC fixtures are shipped with a molded attachment plug. However, different locations (even within the same country) may require a different attachment plug to connect your fixture to a power outlet. Because of the variety of attachment plugs used worldwide, High End Systems, Inc. cannot make specific recommendations for the particular attachment plug you should use. Contact a local authority if you are unsure which type of attachment plug you need to

obtain. If you need to replace the attachment plug, note that the cores in the mains lead are colored in accordance with the following code:

- green and yellow = earth
- blue = neutral
- brown = live

Warning: Class 1 equipment - This equipment must be earthed.

Installing an Attachment Plug - U.K. Only

In the United Kingdom, the colours of the cores in the mains lead of this equipment may not correspond with the colored markings identifying the terminals in your plug. Therefore, install an attachment plug in accordance with the following code:

- The core which is coloured green and yellow must be connected to the plug terminal which is marked with the letter “E,” or by the earth symbol ⏚, or coloured green, or green and yellow.
- The core which is coloured blue must be connected to the terminal which is marked with the letter “N” or coloured black.
- The core which is coloured brown must be connected to the terminal which is marked with the letter ”L” or coloured red.

Warning: Class 1 equipment - This equipment must be earthed.

Vigtig Fikker Heds Information - Danmark

Advarsel: Beskyttelse mod elektrisk chock.

Vigtigt!
Lederne med gul/groen isolation maa kun tilsluttes en klemme maerket ⏚ eller ⏚

Powering On the Fixture

Warning: This equipment for connection to a branch circuit having a maximum overload protection of 20 A.

Studio Beam PC fixtures do not have a power switch. To power on the fixture, simply connect it to an appropriately-rated power source. Once connected, you can remotely power up or shutdown the fixture via controller commands (see “Control” on page 2-8). However, it is very important that you electrically isolate the fixture before performing certain procedures as shown in this manual.

Homing the Fixture

The fixture's homing procedure verifies that the major functions of the fixture (color wheels, frost flags, and shutter) are oriented properly. The homing procedure is also used to take the fixture out of shutdown mode. During the homing process, you will hear clicking sounds as the wheels, flags, and shutter seek their home position.

When you connect any Studio Beam PC to an appropriately-rated power source, the fixture automatically begins a homing procedure. You can also remotely home the fixture via a DMX controller (see "Control" on page 2-8) or manually home the fixture via the on-board menu system (see "Homing the Fixture (HOME)" on page 2-39).

Linking Fixtures

To link one or more fixtures to a controller and/or to each other, you must obtain data cabling. You can either purchase cabling from High End Systems (see "Optional Accessories" on page intro-5) or construct your own cabling. If you choose to construct your own cabling, it must adhere to the specifications listed in "Constructing Cabling" below.

Caution: High End Systems does *not* recommend running your fixtures off a dimmer.

Constructing Cabling

If you choose to construct cabling, High End Systems recommends that you use data-grade cable. Data-grade cable is designed to carry a high-quality signal with less susceptibility to electromagnetic interference. Data-grade cables must be Belden® 9841 or equivalent (meets specifications for EIA RS-485 applications) with the following characteristics:

- 2-conductor twisted pair plus a shield
- maximum capacitance between conductors - 30 pF/ft.
- maximum capacitance between conductor and shield - 55 pF/ft.
- maximum resistance of 20Ω /1000 ft.
- nominal impedance 100-140Ω

Cabling Connectors

Studio Beam PC fixtures can accept either 3-pin or 5-pin XLR cable connectors. Your cabling must have a male XLR connector on one end of the cable and a female XLR connector on the other end.

In a 3-pin connector, pin one is the common (cable shield), pin two is the data complement (negative), and pin three is the data true (positive) (see Figure 1-2).

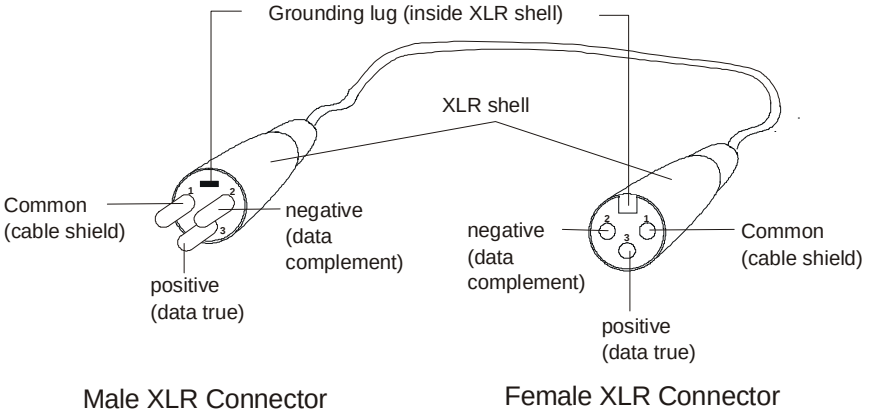
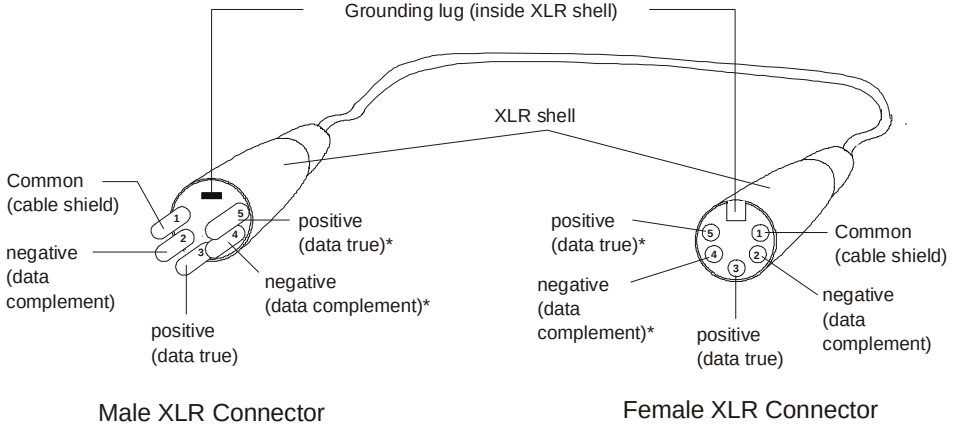


Figure 1-2. XLR 3-pin connector.

In a 5-pin connector, pin one is the common (cable shield), pin two is the data complement (negative), pin three is the data true (positive), and pins four and five are not used, but they allow a secondary data link to pass through the fixture (see Figure 1-3).



**This data line is not used by the fixture, but allows data to pass through the fixture.*

Figure 1-3. XLR 5-pin connector.

You should test each cable with a voltage/ohm meter (VOM) to verify correct polarity and to make sure that the negative and positive pins are not grounded or shorted to the shield or to each other.

Caution: Do not connect anything to the ground lug on the XLR connectors. Do not connect or allow contact between the common (cable shield) and the fixture's chassis

ground. Grounding the common could cause a ground loop and/or erratic behavior.

Linking Procedure

You can link up to 32 Studio Beam PC fixtures on a DMX link (512 DMX channels available / 16 channels = 32 fixtures per link). For more information on channel values, see Table 2-1 on page 2-2.

To link one or more fixtures to a controller and/or to each other, follow the steps below:

1. Connect a male XLR cable connector (with attached data cable) to the controller's Data Out connector.

   If you plan to control your fixtures in stand-alone mode (without a controller), connect a male XLR cable connector with attached data cable to the 3-pin or 5-pin Data Out connector on the *master fixture* (the fixture addressed at DMX start channel 1). For more information, see "DMX Start Channels" on page A-1.

2. Connect the female XLR cable connector *of the same data cable* to the first (or next) fixture's 3-pin or 5-pin Data In connector (see Figure 1-4).

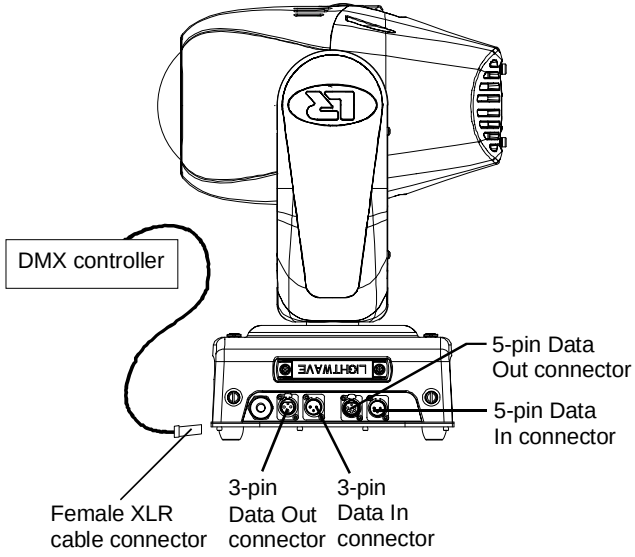


Figure 1-4. Data In and Data Out connectors on the fixture's side panel.

3. Continue using this method to link the remaining fixtures together by connecting a male XLR cable connector (with attached data cable) to one fixture's Data Out connector and the female XLR cable connector *of the same data cable* to the next fixture's Data In connector (see Figure 1-5).

Caution: Do *not* connect more than one Data In and one Data Out connector to each fixture.

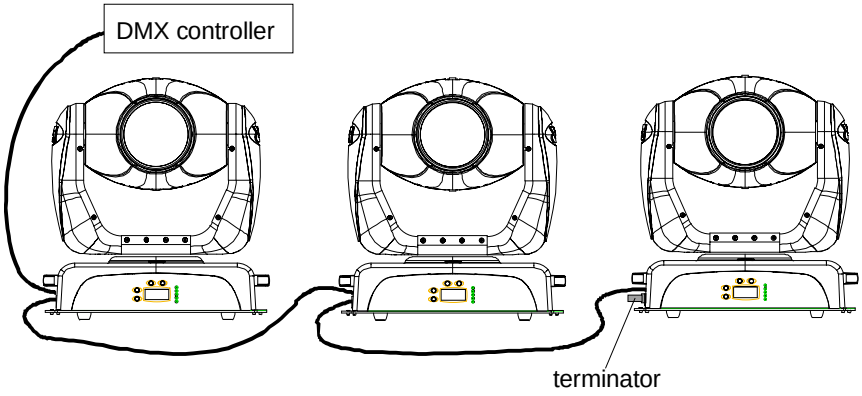


Figure 1-5. Linking the fixtures.

4. Connect a male terminator to the Data Out connector of the last fixture in the link (see Figure 1-5). If you plan to control your fixtures in stand-alone mode (without a controller), you should also install a female terminator in the Data In connector of the *master* fixture (the fixture assigned to DMX start channel 1). For information on terminators, see "Obtaining a Terminator" below.

   Note: Controllers, serial data distributors, data line optoisolators, and any fixtures using the RS-422 DMX standard of serial communications (including Dataflash® AF1000 xenon strobes, and Intellabeam® fixtures) block software uploads or crossloads on a link. Therefore, make sure you either put all of these devices *after* the Studio Beam PC fixtures on the link, or bypass these devices when you perform software uploads or crossloads.

Obtaining a Terminator

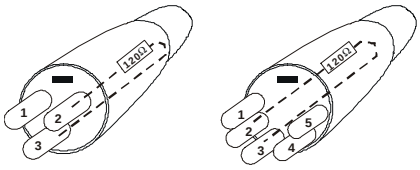
You must install a 120 ohm, 1/4 watt (minimum) terminator in the fixture's Data Out (female) cable connector in the *last* fixture on each DMX link. If you plan to control your fixtures in stand-alone mode (with no controller on the link), you must also install a female terminator in the Data In cable connector on the *master* fixture (the fixture assigned to DMX start channel 1). A terminator will prevent data reflection, which can corrupt the data communication on the link.

You can purchase a male 5-pin terminator from your High End Systems dealer/distributor (see "Optional Accessories" on page intro-5), or you can follow the instructions below to construct a terminator.

Note: The process for constructing either a male or a female terminator is the same.

To construct a terminator:

1. Obtain a 3-pin or 5-pin XLR connector.
2. Disassemble the connector.
3. Solder a 120 ohm resistor, minimum of 1/4 watt, between pins two and three (see Figure 1-6)
4. Reassemble the XLR connector.



3-pin terminator 5-pin terminator

Figure 1-6. Data cable terminator.

Mounting the Fixture

Warnings: 1) Equipment suitable for dry locations only. Do not expose this equipment to rain or moisture.

1m

2) Maintain a minimum distance of 1 m (3.28 ft.) from combustible materials.

2m

3) Maintain a minimum distance of 2 m (6.56 ft.) from lighted object. This means the fixture must be positioned at least 2 meters away from the object it is illuminating.

4) Do not mount on a flammable surface.

5) Use a secondary safety cable when mounting this fixture.

You can mount Studio Beam PC fixtures either upright (on the fixture's base) or in any orientation suspended from a support system (such as a truss). Follow the instructions below for the mounting orientation you choose.

Mounting the Fixture Upright

To mount the fixture upright, make sure that all four rubber feet are installed on the fixture's base (see Figure 1-7) and place the fixture on a sturdy, stable surface. If the surface is above floor height, use safety cables to secure the fixture to the surface (see "Safety Cable" below).

Install the safety cable(s) by looping the cables around a support on the surface, through the side holes in the fixture's base, and around the fixture's handles (see Figure 1-8). Make sure the support and cables can support the weight of the fixture (see "Physical Specifications" on page intro-3).

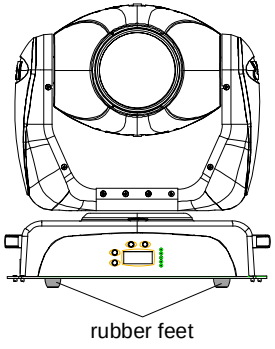


Figure 1-7. Location of the rubber feet.

Caution: Do not mount the fixture upright without the four rubber feet installed.

Mounting the Fixture on a Truss

You will need:

- truss or other support system
- safety cables (2)
- clamps (2)
- locking washers (2)

Truss or Other Support System

If you are mounting the fixture(s) on a truss or another type of support, verify the truss or support will handle the weight of *all* the devices you are mounting. The Studio Beam PC fixture weight is listed in the section titled "Physical Specifications" on page intro-3.

Safety Cable

High End Systems strongly recommends that you use safety cable when mounting any fixture. You must supply your own safety cable and verify the cable is capable of supporting the weight of the fixture. You can order galvanized safety cables from your High End Systems dealer/distributor (see "Optional Accessories" on page intro-5).

Clamp

You must supply your own clamps and verify the clamp is capable of supporting the weight of the fixture. You can order deluxe C-clamps for a two-inch truss from your High End Systems dealer/distributor (see "Optional Accessories" on page intro-5).

Note: Due to the wide variety of possible lighting designs, High End Systems cannot make specific mounting recommendations. Consider the following procedure as a suggested guideline only.

Suggested mounting procedure:

1. Unplug the fixture. If the fixture has been operating, allow the fixture to cool before handling.
2. Use two people to mount each fixture: one person to hold the fixture while it is being secured in place, and one person to secure the fixture to its support and attach safety cables.

   Always stand on a firm, stable surface when mounting a fixture to its support. The fixture should be at a height where you can comfortably work on it, and should either be resting on a stable surface, or held in a stable manner. *Do not allow one person to both support and mount the fixture*.

3. Attach suitable clamps through the center holes on the base of the fixture (see Figure 1-8). *Install two locking washers per clamp when attaching the clamps to the fixture's base.*

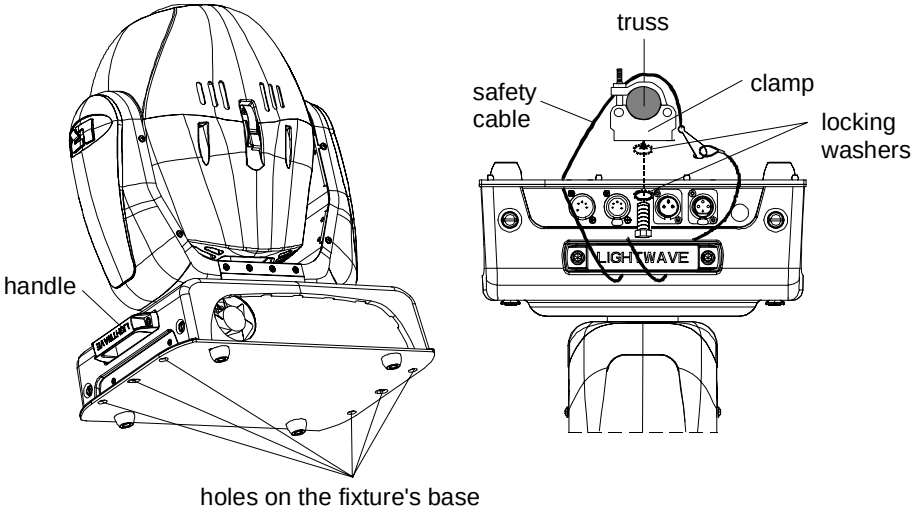


Figure 1-8. Attaching a clamp and safety cable to the fixture.

4. Tighten the clamps firmly to the fixture's base and to the support.
5. Loop one or more suitable safety cables around the support, through the side holes in the fixture's base, and around the fixture's handles (see Figure 1-8).

Assigning a DMX Start Channel

To assign a DMX start channel, you must access the fixture's menu system via the alphanumeric LED display and four menu navigation buttons on the fixture's front panel (see Figure 1-9). For a detailed menu map, see "Menu Map" on page 2-10.

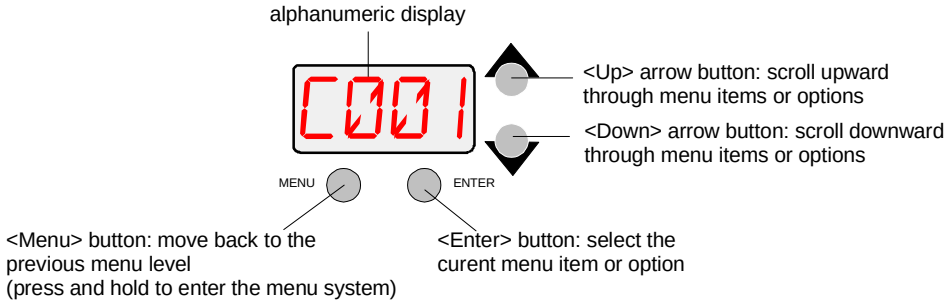

alphanumeric display
C001
<Up> arrow button: scroll upward through menu items or options
<Down> arrow button: scroll downward through menu items or options
MENU
ENTER
<Menu> button: move back to the previous menu level (press and hold to enter the menu system)
<Enter> button: select the curent menu item or option

Figure 1-9. Menu navigation buttons.

Assigning a DMX Start Channel

The DMX start channel identifies each fixture on a DMX link. If you plan to control your fixtures with a DMX controller (or using synchronized preset playback), you must assign a DMX start channel to each fixture on the link. However, if you *always* plan to use the fixture in stand-alone mode (without a controller or synchronized preset playback), you can skip this section. For more information, see "Preset Programming" on page 2-9 or "Synchronizing Preset Playback" on page 2-54.

There are 512 available channels on each DMX link. These 512 channels are divided among *all* the devices on a particular link. The number of channels each fixture requires is called the fixture's channel range. The DMX start channel is the first channel available to a fixture in its channel range. All Studio Beam PC fixtures have a 16-channel range.

The fixture's channel range must not overlap any other device's channel range on the link.* When two devices on the same DMX link have overlapping channel ranges, one or both devices will be disabled or behave erratically.

*Note: The single exception to the non-overlapping rule is if you want the fixtures to respond to controller commands in exactly the same way. In this case, the fixtures must be the same type (for example, two Studio Beam PC fixtures) and the fixtures must share the *entire* channel range.

If you plan to mix different fixture types (for example, a Studio Beam PC fixture and a Studio Spot 250 fixture) on the same DMX link, see "Determining the DMX Start Channel" below. If your DMX link will have only Studio Beam PC fixtures, see "DMX Start Channels" on page A-1 for a listing of available DMX start channels for successive fixtures on the link.

To assign a DMX start channel for the fixture:

1. Press and hold <Menu> until "ADDR" appears on the LED display.
2. Press <Enter>.

to

3. Scroll to the desired DMX start channel (C001 - C512)
4. Press <Enter>.

Determining the DMX Start Channel

To determine each fixture's DMX start channel in a link, you must know the number of channels used by each fixture. Knowing that the first fixture on the link will use DMX start channel 1, you can determine the DMX start channel for each successive fixture by adding the number of DMX channels used by the fixture to the fixture's DMX start channel. For example, in Table 1-1, 16 (channels used by Studio Beam PC) + 1 (DMX start channel for the first fixture) = 17 (DMX start channel for the next fixture on the link).

Table 1-1. Example: Determining Unique DMX Start Channels

Fixture location on the link[1]	Fixture name	Number of DMX channels used per fixture	DMX start channel	Channel range used
First	Studio Beam PC	16 channels	C001	1-16
Second	Other device	9 channels	C017	17-25
Third	Other device	14 channels	C026	26-39
Fourth	Studio Beam PC	16 channels	C040	40-55

[1]The fixture location on the link does not have to comply with this example. The fixtures can be addressed in any order on the link.

If you have other fixtures in the link or plan to skip channels, note that the maximum address for the last Studio Beam PC fixture on the link is 497 (channel range 497-512).

Chapter 2
Operating the Fixture

Studio Beam PC fixtures can be programmed for operation either with a DMX-compatible controller or with preset programming (for stand-alone operation). If you plan to operate your fixture using a DMX controller, see “Programming with a DMX Controller” on page 2-2. If you plan to operate your fixture using the on-board menu system, see “Preset Programming” on page 2-9.

Programming Overview

A *construct* is a specific feature of the fixture that helps to design the “look” of the light beam (such as the color, effect, or strobe rate). A *scene* is a combination of all the available construct values you selected. When you play back more than one scene in sequence, it becomes a *program*. A program that continuously repeats is called a *loop* (see “Creating a Loop” on page 2-54).

Some constructs allow you to choose a construct value set by MSpeed (motor speed). Unlike other construct values which are completed in the shortest length of time after the motor starts moving, an MSpeed change occurs smoothly over the entire MSpeed time value you select. For example, if you select an MSpeed time of 30 seconds, the motor will gradually change position until it reaches its new destination at the end of 30 seconds.

Using a DMX controller, you can program an unlimited number of sequences and retain direct control over the Studio Beam PC fixture at all times. You may choose to save time by programming your fixtures using a controller and then capturing the scene(s) to the on-board memory of multiple Studio Beam PC fixtures.*

Note: Because controllers do not transmit crossfade (FADE) or delay (DLAY) construct values, you must use preset programming to manually set those construct values for each fixture.

You can use either a controller or the fixture’s on-board memory to create and play back scenes, but not both at the same time. In other words, you cannot create a scene using preset programming and play it back using a DMX controller. You also cannot use a controller while on-board scenes are playing.

If you plan to operate your fixtures without a DMX controller, you can synchronize preset playback among all fixtures connected to the DMX link. For more information, see “Synchronizing Preset Playback” on page 2-54.

Programming with a DMX Controller

When you program your fixtures with a DMX controller, you use the controller to assign a value to each of the fixture's available constructs. Each construct is assigned to a specific DMX channel in the fixture's channel range.

The Status Cue® Lighting Console and the Whole Hog® II Lighting Console are the DMX controllers available from High End Systems for Studio Beam PC fixtures (see). For more information on whether your DMX controller will support Studio Beam PC fixtures, contact the controller's vendor.

Table 2-1 lists the Studio Beam PC constructs and their corresponding DMX controller values and channel assignments. If you have a numeric-type controller, use the Value Decimal (dec.) column. If you have a fader-type controller, use the Value Percentage (%) column. If your controller allows you to program hex values, use the Value (hex) column. The values in the tables may vary slightly depending on your controller's rounding convention.

Table 2-1. DMX Construct Parameters

Channel	Construct	Description	Value (dec.)	Value (%)	Value (hex)
1	Pan[1]	Pan Coarse (Allows coarse positioning within a few degrees)	0-255	0-100	00-FF
2	Pan[1]	Pan Fine (Allows fine positioning within a fraction of a degree)	0-255	0-100	00-FF
3	Tilt[1]	Tilt Coarse (Allows coarse positioning within one degree)	0-255	0-100	00-FF
4	Tilt[1]	Tilt Fine (Allows fine positioning within a fraction of a degree)	0-255	0-100	00-FF
5	Color Function[2]	Full Speed Control			
		Continuous (Allows exact positioning at any point on the color wheels which allows for a smaller "step" between positions for color crossfades)	0-15	0-6	00-0F

[1]By default, the Pan and Tilt motion is controlled via MSpeed. If you choose to control the Pan and Tilt constructs with DMX controller crossfading, you must use the Control construct (ch. 16) to set Pan and Tilt MSpeed off.

[2]The Color Function you choose will effect which construct values are available for each individual color wheel (Cyan, Magenta, and Yellow).

Table 2-1. DMX Construct Parameters

Channel	Construct	Description	Value (dec.)	Value (%)	Value (hex)
5 *(cont.)*	Color Function[2] *(cont.)*	Indexed (Divides each color wheel into 8 equal sections and allows the wheel to take the quickest path between positions)	16-31	6-12	10-1F
		Pure Mix (Accesses only the portion of the color wheels used for color mixing)	32-47	13-18	20-2F
		Spin (Wheel spin speed, direction, or fixed position can be set individually on the Cyan, Magenta, and Yellow channels)	48-63	19-25	30-3F
		Cycle (Uses only the color mixing portion of all color wheels to cycle factory-determined colors at variable speeds. Cycle speed is set by the Cyan channel	64-79	25-31	40-4F
		Color Scan (Scans only the color mixing portion of the wheel - not the additional discrete color. Scanning speed or fixed position can be set individually on Cyan, Magenta, and Yellow channels)	80-95	31-37	50-5F
		Random (Randomly selects whole color positions at variable speeds. Random speed is set by the Cyan channel)	96-111	38-44	60-6F
		Blink Continuous (Closes then reopens the shutter between Continuous wheel position changes)	112-127	44-50	70-7F

Table 2-1. DMX Construct Parameters

Channel	Construct	Description	Value (dec.)	Value (%)	Value (hex)
5 *(cont.)*	Color Function[2] *(cont.)*	MSpeed Controlled (see Full Speed Control above for function descriptions)			
		Continuous	128-143	50-56	80-8F
		Indexed	144-159	57-62	90-9F
		Pure Mix	160-175	63-69	A0-AF
		Spin	176-191	69-75	B0-BF
		Cycle	192-207	75-81	C0-CF
		Color Scan	208-223	82-87	D0-DF
		Random	224-239	88-94	E0-EF
		Blink Continuous	240-255	94-100	F0-FF
6	Cyan Color Wheel	Continuous Mode			
		Open	0	0	00
		Color 1 (deep red position)	57	22	39
		Cyan Full Saturation	105	41	69
		Cyan Low Saturation	255	100	FF
		Indexed Mode			
		Open	0-15	0-6	00-0F
		Color 1 (deep red position)	16-47	6-18	10-2F
		Cyan Full Saturation	48-79	19-31	30-4F
		Cyan	80-207	31-81	50-CF
		Cyan Low Saturation	208-239	82-94	D0-EF
		Open	240-255	94-100	F0-FF
		Pure Mix Mode			
		Cyan Full Saturation	0	0	00
		Cyan Low Saturation	255	100	FF
		Spin Mode			
		Continuous Positioning	0-127	0-50	00-7F
		Spin Reverse (fastest to slowest)	128-187	50-73	80-BB
		Spin Stop	188-195	74-77	BC-C3
		Spin Forward (slowest to fastest)	196-255	77-100	C4-FF
		Color Scan Mode			
		Continuous Positioning	0-127	0-50	00-7F
		Scanning (slowest to fastest)	128-255	50-100	80-FF

Table 2-1. DMX Construct Parameters

Channel	Construct	Description	Value (dec.)	Value (%)	Value (hex)
6 *(cont.)*	Cyan Color Wheel *(cont.)*	Cycle & Random Modes (sets the rate for all color wheels)			
		Slow Rate	0	0	00
		Fast Rate	255	100	FF
7	Magenta Color Wheel	Continuous Mode			
		Open	0	0	00
		Color 1 (CTO position)	57	22	39
		Magenta Full Saturation	105	41	69
		Magenta Low Saturation	255	100	FF
		Indexed Mode			
		Open	0-15	0-6	00-0F
		Color 1 (CTO position)	16-47	6-18	10-2F
		Magenta Full Saturation	48-79	19-31	30-4F
		Magenta	80-207	31-81	50-CF
		Magenta Low Saturation	208-239	82-94	D0-EF
		Open	240-255	94-100	F0-FF
		Pure Mix Mode			
		Magenta Full Saturation	0	0	00
		Magenta Low Saturation	255	100	FF
		Spin Mode			
		Continuous Positioning	0-127	0-50	00-7F
		Spin Reverse (fastest to slowest)	128-187	50-73	80-BB
		Spin Stop	188-195	74-77	BC-C3
		Spin Forward (slowest to fastest)	196-255	77-100	C4-FF
		Color Scan Mode			
		Continuous Positioning	0-127	0-50	00-7F
		Scanning (slowest to fastest)	128-255	50-100	80-FF
8	Yellow Color Wheel	Continuous Mode			
		Open	0	0	00
		Color 1 (Deep Blue position)	57	22	39
		Yellow Full Saturation	105	41	69
		Yellow Low Saturation	255	100	FF
		Indexed Mode			
		Open	0-15	0-6	00-0F

Table 2-1. DMX Construct Parameters

Channel	Construct	Description	Value (dec.)	Value (%)	Value (hex)
8 *(cont.)*	Yellow Color Wheel *(cont.)*	Color 1 (Deep Blue position)	16-47	6-18	10-2F
		Yellow Full Saturation	48-79	19-31	30-4F
		Yellow	80-207	31-81	50-CF
		Yellow Low Saturation	208-239	82-94	D0-EF
		Open	240-255	94-100	F0-FF
		Pure Mix Mode			
		Yellow Full Saturation	0	0	00
		Yellow Low Saturation	255	100	FF
		Spin Mode			
		Continuous Positioning	0-127	0-50	00-7F
		Spin Reverse (fastest to slowest)	128-187	50-73	80-BB
		Spin Stop	188-195	74-77	BC-C3
		Spin Forward (slowest to fastest)	196-255	77-100	C4-FF
		Color Scan Mode			
		Continuous Positioning	0-127	0-50	00-7F
		Scanning (slowest to fastest)	128-255	50-100	80-FF
9	Beam Shaping	Continuous Positioning	0-127	0-50	00-7F
		Spin Reverse (fastest to slowest)	128-187	50-73	80-BB
		Spin Stop	188-195	74-77	BC-C3
		Spin Forward (slowest to fastest)	196-255	77-100	C4-FF
10	Zoom	Zoom In	0	0	00
		Zoom Out	255	100	FF
11	Frost[3]	Continuous Positioning (open to closed)	0-127	0-50	00-7F
		Closed	128-135	50-53	80-87
		Periodic Strobe	136-151	53-59	88-97
		Random Strobe	152-167	60-65	98-A7
		Ramp Open / Snap Shut	168-183	66-72	A8-B7
		Snap Open / Ramp Shut	184-199	72-78	B8-C7
		Ramp Open / Ramp Shut	200-215	78-84	C8-D7

[3] Snap instantly opens or closes at full speed. Ramp opens or closes at specified speeds.

Table 2-1. DMX Construct Parameters

Channel	Construct	Description	Value (dec.)	Value (%)	Value (hex)
11 *(cont.)*	Frost[3] *(cont.)*	Random Ramp Open / Snap Shut	216-231	85-91	D8-E7
		Random Snap Open / Ramp Shut	232-247	91-97	E8-F7
		Open	248-255	97-100	F8-FF
12	Shutter[4, 5]	Close	0-23	0-9	00-17
		Periodic Strobe	24-49	9-19	18-31
		Random Strobe	50-75	20-29	32-4B
		Synchronous Random Strobe	76-101	30-40	4C-65
		Ramp Open / Snap Shut	102-127	40-50	66-7F
		Snap Open / Ramp Shut	128-153	50-60	80-99
		Ramp Open / Ramp Shut	154-179	60-70	9A-B3
		Random Ramp Open / Snap Shut	180-205	71-80	B4-CD
		Random Snap Open / Ramp Shut	206-231	81-91	CE-E7
		Open	232-255	91-100	E8-FF
13	Dim	Close	0	0	00
		Open	255	100	FF
14	MSpeed (see "MSpeed Times" on page A-2)	Disable	0-3	0-1	00-03
		Longest (252.7 sec.)	4	2	04
		Shortest (0.15 sec.)	255	100	FF
15	Macro[6]	Macro Off	0-7	0-3	00-07
		Macro 1	8-11	3-4	08-0B
		Macro 2	12-15	5-6	0C-0F
		Macro 3	16-19	6-7	10-13
		Macro 4	20-23	8-9	14-17
		Macro 5	24-27	9-11	18-1B
		Macro 6	28-31	11-12	1C-1F
		Macro 7	32-35	13-14	20-23
		Macro 8	36-39	14-15	24-27

[4]Random Strobe allows all Studio Beam PC fixtures on the DMX link to strobe their shutters at random times.

[5]Synchronous Random Strobe allows all Studio Beam PC fixtures on the DMX link to randomly strobe their shutters at the same time.

[6]For a description of each individual Macro, see "Macro Descriptions" on page A-6.

Table 2-1. DMX Construct Parameters

Channel	Construct	Description	Value (dec.)	Value (%)	Value (hex)
15 *(cont.)*	Macro[6] *(cont.)*	Macro 9	40-43	16-17	28-2B
		Macro 10	44-47	17-18	2C-2F
		Macro 11	48-51	19-20	30-33
		Macro 12	52-55	20-22	34-37
		Macro 13	56-59	22-23	38-3B
		Macro 14	60-63	24-25	3C-3F
		Macro 15	64-67	25-26	40-43
		Macro 16	68-71	27-28	44-47
		Macro 17	72-75	28-29	48-4B
		Macro 18	76-79	30-31	4C-4F
		Macro 19	80-83	31-33	50-53
		Macro 20	84-87	33-34	54-57
		Macro 21	88-91	35-36	58-5B
		Macro 22	92-95	36-37	5C-5F
		Macro 23	96-99	38-39	60-63
		Macro 24	100-103	39-40	64-67
		Macro 25	104-107	41-42	68-6B
		Macro 26	108-111	42-44	6C-6F
		Macro 27	112-115	44-45	70-73
		Macro 28	116-119	45-47	74-77
		Macro 29	120-123	47-48	78-7B
		Macro 30	124-127	49-50	7C-7F
		Macro 31	128-131	50-51	80-83
		Macro 32	132-135	52-53	84-87
		Random Macros	136-167	53-65	88-A7
		Reserved For Future Use	168-255	66-100	A8-FF
16	Control[7]	Safe (disables all Control settings)[8]	0-9	0-4	00-09
		Pan & Tilt MSpeed Off	10-19	4-7	0A-13
		Display Off[8]	20-28	8-11	14-1C

[7]You must set the Shutter construct (ch. 12) to “0” to activate the Control channel. High End Systems recommends that you first select a Control channel value, then set the Shutter construct to “0.”

[8]Most control channel values must be sent for 20 consecutive DMX packets. For example, if your controller send 16 packets per second, you should send the value for 1.25 seconds.

There are three exceptions: Pan & Tilt MSpeed Off is set instantaneously, and Park and Shutdown must be sent for 80 consecutive packets (5 seconds assuming your controller sends 16 packets per second).

Table 2-1. DMX Construct Parameters

Channel	Construct	Description	Value (dec.)	Value (%)	Value (hex)
16 *(cont.)*	Control[7] *(cont.)*	Display Dim[8]	30-38	12-15	1E-26
		Display Bright[8]	40-48	16-19	28-30
		Home[8]	60-68	24-27	3C-44
		Lamp On[8]	80-88	31-35	50-58
		Lamp Off[8]	90-98	35-38	5A-62
		Park[9] *(send for 5 seconds)*[8]	110-118	43-46	6E-76
		Shutdown[10] *(send for 5 seconds)*[8]	120-130	47-51	78-82

[9]The Park command returns all fixtures to a "known" position (128° tilt and either 90° or 450° pan). If you automated the solenoids (see "Automating the Solenoids (AUTO)" on page 2-32), parking the fixture also engages the solenoids to lock the fixture in the known position. This option is useful when you are ready to shut down the fixtures and pack them for transport.

[10]Fixture shutdown allows you to remotely deactivate the fixture. When a fixture is shut down, the lamp is extinguished, power to the motors is disabled, and the LED display shows "SHUT OFF." If a fixture is in shutdown mode, you must home the fixture to bring it back into operation.

Preset Programming

When you use the fixture's on-board menu system to program your fixtures, you manually assign a value to each of the fixture's available constructs using the fixture's menu system. You access the menu system via the four menu navigation buttons on the fixture's front panel (see Figure 2-1).

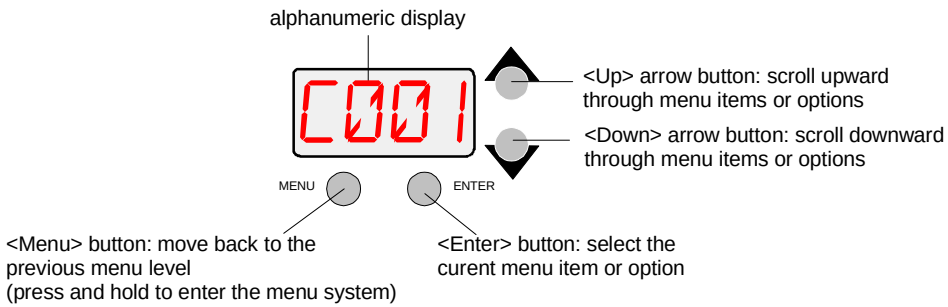

alphanumeric display
C001
<Up> arrow button: scroll upward through menu items or options
<Down> arrow button: scroll downward through menu items or options
MENU
ENTER
<Menu> button: move back to the previous menu level (press and hold to enter the menu system)
<Enter> button: select the curent menu item or option

Figure 2-1. Menu navigation buttons.

The alphanumeric LED display shows the menu items you select from the menu map. When accessing fixture options (not preset scenes), the display will flash when a new option is *selected* (by pressing the <Up> or <Down> arrow buttons)

and will stop flashing when a new option is *entered* (by pressing the <Enter> button). Pressing the <Menu> button returns you to the previous option or menu *without changing* the value of an option.

To access the menu system, press and hold the <Menu> button until "ADDR" appears on the display. The menu system is protected against inadvertent menu changes by requiring the <Menu> button to be held for a few seconds before allowing entry to the menu system.

To exit the menu system, you must keep pressing the <Menu> button until "MENU" appears on the display. "MENU" will be replaced after a few seconds, with the default cycling display of the fixture's software version, fixture type, and DMX start channel.

Note: The words "AUTO" and "LOCK" will appear briefly on the display after "TOP." As mentioned above, the fixture's software is "locking" the display after you have accessed the menu system.

Menu Map

The intuitive Studio Beam PC menu system allows you to:

- Assign a DMX start channel (discussed in Chapter 1)
- Access fixture options such as homing the fixture, viewing fixture status, crossloading software, and performing self tests (listed in the menu map below)
- Create, store, and play scenes from the fixture's on-board memory using preset programming (see the individual menu item descriptions listed in this section or "Step-By-Step Example" on page 2-50).

A complete map of the menu system for Studio Beam PC is shown in Table 2-2. See individual subsections for descriptions of each menu item.

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
ADDR	Cxxx				change the existing DMX start channel
SET	FACT	ON			set factory defaults on
		OFF			set factory defaults off
	SWAP	ON			set pan/tilt swap on
		OFF			set pan/tilt swap off
	T/IN	ON			set tilt invert on
		OFF			set tilt invert off
	P/IN	ON			set pan invert on
		OFF			set pan invert off
	DSPL	ON			set the LED display on
		OFF			set the LED display off
		DIM			dim the LED display

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
SET *(cont.)*	D/IN	ON			select inverted LED display orientation
		OFF			select normal LED display orientation
	LMPL	ON			enable lamp hour warning message
		OFF			disable lamp hour warning message
	DARK	ON			use the dark blue filter when the shutter is closed to help dim the light path
		OFF			dark blue filter not used to help dim the light path
	DLOS	LONG			shutter will remain open until shutdown if DMX data is lost
		SHRT			shutter will close one second after DMX data is lost
	SOLN	AUTO	ON		enable the solenoids to automatically engage when the fixture is in “park”
			OFF		disable the solenoids
		CNTR	PCEN		set centering for the pan solenoid *(the data link must be disconnected)*
			TCEN		set centering for the tilt solenoid *(the data link must be disconnected)*
		TEST	PIN		retract the pan solenoid
			POUT		extend the pan solenoid
			TIN		retract the tilt solenoid
			TOUT		extend the tilt solenoid
		PARK	OK?		park the fixture *(press and hold the <Enter> button for five seconds to select this option)*
	FAST	ON			enable fast pan and tilt movement
		OFF			enable normal pan and tilt movement

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
MODE	USER	A			select user A settings
		B			select user B settings
		COPY	PRST	A → B	copy user A presets to user B
				B → A	copy user B presets to user A
			SETT	A → B	copy user A settings to user B
				B → A	copy user B settings to user A
			ALL	A → B	copy user A presets and settings to user B
				B → A	copy user B presets and settings to user A
	XLD				crossload fixture software to all other Studio Beam PC fixtures on the link
TEST	HOME				home the fixture
	LAMP	ON			strike the lamp
		OFF			extinguish the lamp
	BOOT				copy the boot sector
	SELF	ALL			self test all constructs
		PAN			self test pan movement
		TILT			self test tilt movement
		CYAN			self test cyan color wheel movement
		MAGN			self test magenta color wheel movement
		YELW			self test yellow color wheel movement
		BEAM			self test beam shaping (lenticular wheel) movement
		FCUS			self test lens focus movement
		SHUT			self test shutter strobe movement
		DIM			self test dim flag movement
	S/UP				place the fixture in setup mode for mechanical homing
	DISP				self test the LED display
	ENCD	ON			restore pan and tilt encoder operation
		OFF			disable pan and tilt encoder operation
	CODE				*Factory use only*

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
INFO	SENS	SEN1			view whether the magenta and beam shaping wheel sensor is obstructed (“ON”) or is not obstructed (“OFF”)
		SEN2			view whether the cyan and yellow wheel sensor is obstructed (“ON”) or is not obstructed (“OFF”)
		TILT			view whether the tilt sensor is obstructed (“ON”) or is not obstructed (“OFF”)
		PAN			view whether the pan sensor is obstructed (“ON”) or is not obstructed (“OFF”)
		TPOS			view the tilt position encoder status
		PPOS			view the pan position encoder status
	UNUM				*Customer Service use only*
	DMX	FIXT	BRKS		view the number of DMX breaks
			FE		view the number of DMX framing errors
			OV		view the number of DMX overruns
			STRT		view the DMX start code value
			PANH		view the DMX high resolution pan value
			PANL		view the DMX low resolution pan value
			TLTH		view the DMX high resolution tilt value
			TLTL		view the DMX low resolution tilt value
			COLC		view the DMX color control channel value
			CYAN		view the DMX cyan color wheel position value
			MAGN		view the DMX magenta color wheel position value

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
INFO *(cont.)*	DMX *(cont.)*	FIXT *(cont.)*	YELW		view the DMX yellow color wheel position value
			BEAM		view the DMX beam shaping (lenticular wheel) position value
			ZOOM		view the DMX zoom lens position value
			FRST		view the DMX frost position value
			SHUT		view the DMX shutter strobe value
			DIM		view the DMX shutter dim flag value
			MSPD		view the DMX MSpeed time value
			MACR		view the DMX macro value
			CNTL		view the DMX control channel value
		DATA	C001 - C512		view the DMX data for the selected DMX channel
	TEMP	PCB			view the current temperature at the logic board (C)
		HEAD			view the current internal head temperature (C)
	F/RS				reset fixture hours to zero *(press and hold the <Enter> button for five seconds to change the value)*
	F/HR				view the current number of fixture hours
	L/RS				reset lamp hours to zero *(press and hold the <Enter> button for five seconds to change the value)*
	L/ST				view the current number of lamp strikes
	L/HR				view the current number of lamp hours
	VER				view the fixture's software version

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST	PLAY	OFF			set preset playback off
		ON			set preset playback on
		SCN			display which scene is currently playing
	EDIT	SN01 - SN16	SHUT	CLSD	close the shutter
				P01 - P28	select shutter strobe at periodic intervals from slow (P 01) to fast (P 28)
				NN01 - NN28	select shutter strobe at random intervals from slow (N 01) to fast (N 28)
				NK01 - NK28	select shutter strobe at random intervals from slow (NK01) to fast (NK28), in synchronization with the random strobing of all other Studio Beam PC fixtures on the link
				RS01 - RS28	select shutter ramp open slow (RS01) to fast (RS28), snap shut
				SR01 - SR28	select shutter snap open, ramp shut slow (SR01) to fast (SR28)
				RR01 - RR28	select shutter ramp open, ramp shut slow (RR01) to fast (RR28)
				NR01 - NR28	select the frequency to randomly ramp open slow (NR01) to fast (NR28), snap shut
				NS01 - NS28	select the frequency to snap open, randomly ramp shut slow (NS01) to fast (NS28)
				OPEN	open the shutter
			DIM	D001 - D255	select a dim value from dark (D001) to bright (D255)
			PAN	-49.9 - +49.9	select a pan value from -49.9% to +49.9% of the pan range
			TILT	-49.9 - +49.9	select a tilt value from -49.9% to +49.9% of the tilt range
			COLC	CON	select exact positioning at any point on the color wheel, full speed

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	COLC *(cont.)*	IDX	divide the cyan, magenta, and yellow color wheels into eight equal sections, full speed
				MIX	access only the portion of the wheels used for color mixing, full speed
				WSP	set all three color wheels to spin mode, (spin speed and direction set by each individual wheel), full speed
				CYC	use only the color mixing portion (for all three color wheels) to cycle colors from red to green to blue (speed set by cyan channel), full speed
				SCN	scan (oscillate) within the color mixing portion of the color wheel (speed set by each individual wheel), full speed
				RND	perform random color chase of 12 factory-selected colors using the three color wheels (speed set by cyan channel), full speed
				BLK	shutter blink between indexed color changes, full speed
				MCON	select exact positioning at any point on the color wheel, MSpeed
				MIDX	divide cyan, magenta, and yellow color wheels into eight equal sections, MSpeed
				MMIX	access only the portion of the wheels used for color mixing, MSpeed
				MWSP	set all three color wheels to spin mode, (spin speed and direction set by each individual wheel), MSpeed

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	COLC *(cont.)*	MCYC	use only the color mixing portions (for all three color wheels) to cycle colors from red to green to blue (speed set by cyan channel), MSpeed
				MSCN	scan (oscillate) within the color mixing portion of the color wheel (speed set by each individual wheel), MSpeed
				MRND	perform random color chase of 12 factory-selected colors using the three color wheels (speed set by cyan channel), MSpeed
				MBLK	shutter blink between indexed color changes, MSpeed
			CYAN	D000 - D358	select an exact position on the cyan color wheel from 0° (D000) to 358° (D358) - *only available with COLC value of CON or MCON*
				OPEN	select the open “white” position on the cyan color wheel - *only available with COLC value of IDX or MIDX*
				C 1	select the additional fixed color (deep red) on the cyan color wheel - *only available with COLC value of IDX or MIDX*
				S 6	choose the most saturated position on the cyan color wheel - *only available with COLC value of IDX or MIDX*
				S 5	choose the second most saturated position on the cyan color wheel - *only available with COLC value of IDX or MIDX*
				S 4	choose the third most saturated position on the cyan color wheel - *only available with COLC value of IDX or MIDX*

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	CYAN *(cont.)*	S 3	choose the fourth most saturated position on the cyan color wheel - *only available with COLC value of IDX or MIDX*
				S 2	choose the fifth most saturated position on the cyan color wheel - *only available with COLC value of IDX or MIDX*
				S 1	choose the least saturated position on the cyan color wheel - *only available with COLC value of IDX or MIDX*
				C000 - C255	select an exact position within the color mixing section of the cyan color wheel from most saturated (C000) to least saturated (C255) - *only available with COLC value of MIX or MMIX*
				D000 - D358	select a fixed position on the cyan color wheel from 0° (D000) to 358° (D127) or set the wheel spin speed and direction (D128 - D255) - *only available with COLC value of WSP or MWSP*
				WR60 - WR01	select a reverse cyan color wheel spin speed from fast (WR60) to slow (WR01) - *only available with COLC value of WSP or MWSP*
				STIL	stop the cyan color wheel from spinning - *only available with COLC value of WSP or MWSP*
				WF01 - WF60	select a forward cyan color wheel spin speed from slow (WR01) to fast (WR60) - *only available with COLC value of WSP or MWSP*

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	CYAN *(cont.)*	L000 - L255	select the speed at which all three color wheels move to the next cycle color, from slow (L000) to fast (L255) - *only available with COLC value of CYC or MCYC*
				K001 - K128	select the speed to scan (oscillate) within the color mixing portion of the cyan color wheel from slow (K001) to fast (K128) - *only available with COLC value of SCN or MSCN*
				N000 - N255	select the speed at which all three color wheels move to the next random color, from slow (N000) to fast (N255) - *only available with COLC value of RND or MRND*
				BC 1	select the additional fixed color (deep red) on the cyan color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 6	choose the most saturated position on the cyan color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 5	choose the second most saturated position on the cyan color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 4	choose the third most saturated position on the cyan color wheel with shutter blink - *only available with COLC value of BLK or MBLK*

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	CYAN *(cont.)*	BS 3	choose the fourth most saturated position on the cyan color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 2	choose the fifth most saturated position on the cyan color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 1	choose the least saturated position on the cyan color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
			MAGN	D000 - D358	select an exact position on the magenta color wheel from 0° (D000) to 358° (D358) - *only available with COLC value of CON or MCON*
				OPEN	select the open “white” position on the magenta color wheel - *only available with COLC value of IDX or MIDX*
				M 1	select the additional fixed color (CTO) on the magenta color wheel - *only available with COLC value of IDX or MIDX*
				S 6	choose the most saturated position on the magenta color wheel - *only available with COLC value of IDX or MIDX*
				S 5	choose the second most saturated position on the magenta color wheel - *only available with COLC value of IDX or MIDX*

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	MAGN *(cont.)*	S 4	choose the third most saturated position on the magenta color wheel - *only available with COLC value of IDX or MIDX*
				S 3	choose the fourth most saturated position on the magenta color wheel - *only available with COLC value of IDX or MIDX*
				S 2	choose the fifth most saturated position on the magenta color wheel - *only available with COLC value of IDX or MIDX*
				S 1	choose the least saturated position on the magenta color wheel - *only available with COLC value of IDX or MIDX*
				M000 - M255	select an exact position within the color mixing section of the magenta color wheel from most saturated (M000) to least saturated (M255) - *only available with COLC value of MIX or MMIX*
				D000 - D358	select a fixed position on the magenta color wheel from 0° (D000) to 358° (D127) or set the wheel spin speed and direction (D128 - D255) - *only available with COLC value of WSP or MWSP*
				WR60 - WR01	select a reverse magenta color wheel spin speed from fast (WR60) to slow (WR01) - *only available with COLC value of WSP or MWSP*
				STIL	stop the magenta color wheel from spinning - *only available with COLC value of WSP or MWSP*

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	MAGN *(cont.)*	WF01 - WF60	select a forward magenta color wheel spin speed from slow (WR01) to fast (WR60) - *only available with COLC value of WSP or MWSP*
				K001 - K128	select the speed to scan (oscillate) within the color mixing portion of the magenta color wheel from slow (K001) to fast (K128) - *only available with COLC value of SCN or MSCN*
				BM 1	select the additional fixed color (CTO) on the magenta color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 6	choose the most saturated position on the magenta color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 5	choose the second most saturated position on the magenta color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 4	choose the third most saturated position on the magenta color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 3	choose the fourth most saturated position on the magenta color wheel with shutter blink - *only available with COLC value of BLK or MBLK*

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	MAGN *(cont.)*	BS 2	choose the fifth most saturated position on the magenta color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 1	choose the least saturated position on the magenta color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
			YELW	D000 - D358	select an exact position on the yellow color wheel from 0° (D000) to 358° (D358) - *only available with COLC value of CON or MCON*
				OPEN	select the open “white” position on the yellow color wheel - *only available with COLC value of IDX or MIDX*
				Y 1	select the additional fixed color (dark blue) on the yellow color wheel - *only available with COLC value of IDX or MIDX*
				S 6	choose the most saturated position on the yellow color wheel - *only available with COLC value of IDX or MIDX*
				S 5	choose the second most saturated position on the yellow color wheel - *only available with COLC value of IDX or MIDX*
				S 4	choose the third most saturated position on the yellow color wheel - *only available with COLC value of IDX or MIDX*
				S 3	choose the fourth most saturated position on the yellow color wheel - *only available with COLC value of IDX or MIDX*

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	YELW *(cont.)*	S 2	choose the fifth most saturated position on the yellow color wheel - *only available with COLC value of IDX or MIDX*
				S 1	choose the least saturated position on the yellow color wheel - *only available with COLC value of IDX or MIDX*
				Y000 - Y255	select an exact position within the color mixing section of the yellow color wheel from most saturated (Y000) to least saturated (Y255) - *only available with COLC value of MIX or MMIX*
				D000 - D358	select a fixed position on the yellow color wheel from 0° (D000) to 358° (D127) or set the wheel spin speed and direction (D128 - D255) - *only available with COLC value of WSP or MWSP*
				WR60 - WR01	select a reverse yellow color wheel spin speed from fast (WR60) to slow (WR01) - *only available with COLC value of WSP or MWSP*
				STIL	stop the yellow color wheel from spinning - *only available with COLC value of WSP or MWSP*
				WF01 - WF60	select a forward yellow color wheel spin speed from slow (WR01) to fast (WR60) - *only available with COLC value of WSP or MWSP*
				K001 - K128	select the speed to scan (oscillate) within the color mixing portion of the yellow color wheel from slow (K001) to fast (K128) - *only available with COLC value of SCN or MSCN*

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	YELW *(cont.)*	BY 1	select the additional fixed color (dark blue) on the yellow color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 6	choose the most saturated position on the yellow color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 5	choose the second most saturated position on the yellow color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 4	choose the third most saturated position on the yellow color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 3	choose the fourth most saturated position on the yellow color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 2	choose the fifth most saturated position on the yellow color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
				BS 1	choose the least saturated position on the yellow color wheel with shutter blink - *only available with COLC value of BLK or MBLK*
			BEAM	D000 - D358	select an exact beam shaping (lenticular wheel) position from 0° (D000) to 358° (D358)

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	BEAM *(cont.)*	WR60 - WR01	select a reverse lenticular wheel spin speed, from fast (WR60) to slow (WR01)
				STIL	stop the lenticular wheel from spinning
				WF01 - WF60	select a forward lenticular wheel spin speed, from slow (WF01) to fast (WF60)
			ZOOM	000 - 255	select a zoom value for a beam angle from 15° (000) to 30° (255)
			FRST	OPEN	open the frost flags
				F001 - F127	select the exact positioning of the frost flags from fully opened (F001) to fully closed (F127).
				CLSD	close frost flags
				P 01 - P 16	select frost strobe at periodic intervals from slow (P 01) to fast (P 16)
				N 01 - N 16	select frost strobe at random intervals from slow (N 01) to fast (N 16)
				RS01 - RS16	select frost ramp open slow (RS01) to fast (RS16), snap shut
				SR01 - SR16	select frost snap open, ramp shut slow (SR01) to fast (SR16)
				RR01 - RR16	select frost ramp open, ramp shut slow (RR01) to fast (RR16)
				NR01 - NR16	select the frequency to randomly ramp open slow (NR01) to fast (NR16), snap shut
				NS01 - NS16	select the frequency to snap open, randomly ramp shut slow (NS01) to fast (NS16)
			MSPD	0.15 - 252.7	select a motor movement time in decimal seconds, from fast (0.15) to slow (252.7)
			MACR	MCOF	set all macro options off
				MC01 - MC32	select a factory-programmed macro *(see "Macro Descriptions" on page A-6)*

Table 2-2. Studio Beam™ PC Menu Map

Menu Level 1	Menu Level 2	Menu Level 3	Menu Level 4	Menu Level 5	Description
PRST *(cont.)*	EDIT *(cont.)*	SN01 - SN16 *(cont.)*	MACR *(cont.)*	RN01 - RN32	select all 32 factory-programmed macros to play in random order at variable speeds from slow (RN01) to fast (RN32)
			XFAD	X 0.1 - X 9.9	select the DIM and FCUS construct's crossfade time in increments of 0.1
				X 10 - X166	select the DIM and FCUS construct's crossfade time in increments of 1
			DLAY	D 0.1 - D 9.9	select the scene delay time in increments of 0.1
				D 10 - D166	select the scene delay time in increments of 1
			TIME	SEC	select seconds as the units of time used for the XFAD and DLAY constructs
				MIN	select minutes as the units of time used for the XFAD and DLAY constructs
				HOUR	select hours as the units of time used for the XFAD and DLAY constructs
			ZERO	OK?	erase any programming of the current scene by voiding all construct values / mark the end of the loop
	COPY	FROM	FA01 - FA16		select a user A scene to copy from (source scene)
			FB01 - FB16		select a user B scene to copy from (source scene)
		TO	TA01 - TA16		select a user A scene to copy to (destination scene)
			TB01 - TB16		select a user B scene to copy to (destination scene)
	CAPT	SN01 - SN16			select a scene to capture a pre-programmed scene to (from your DMX controller)
	DFLT	OK?			enable the factory-programmed preset scene sequence (self-demo) / erases any preset scenes previously programmed

Fixture Options

The sections below explain how to access the fixture options shown in the fixture's menu map. For an example of how to program a preset scene using the on-board menu system, see "Step-By-Step Example" on page 2-50.

Address Menu (ADDR)

The Address menu allows you to change the DMX start channel that is currently assigned to the fixture.

To change the DMX start channel:

1. Press and hold <Menu> until "ADDR" appears on the LED display.
2. Press <Enter>.

to

3. Select a new DMX start channel (C001 - C512). The LED display will flash when a new option is selected.
4. Press <Enter> to accept the new DMX start channel. The LED display will stop flashing when a new option is entered. If you do not press <Enter>, the new option you selected will not be stored.

   Note: Be sure you do not overlap fixture channel ranges when changing the DMX start channel (see "Assigning a DMX Start Channel" on page 1-10).

Set Menu (SET)

The Set menu allows you to access the solenoid features, park the fixture, and either set all factory options to their default settings or change the factory options individually. The procedures below are listed in the same order shown on the menu map (see Table 2-2 on page 2-10).

Setting Factory Defaults (FACT)

When you set this menu item on, all factory options return to their default settings. Studio Beam PC fixtures are shipped from the factory with the following options set to the following defaults:

- pan/tilt swap = off
- tilt invert = off
- pan invert = off
- LED display = on and bright
- LED display invert = off
- lamp life warning = off
- dark blue filter = off
- shutter close with DMX data loss = short
- solenoid automated = off

- fast pan/tilt movement = off
- preset playback = off

Note: To change the preset playback option, see "Setting Preset Playback (PLAY)" on page 2-47.

To change the factory default setting:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "SET" menu.
3. Press <Enter>.

4. Scroll to the "FACT" menu (this will be the first menu displayed).
5. Press <Enter>.

6. Scroll to "ON" to set the factory option defaults on, or "OFF" to manually set the factory option defaults off.

or

7. Press <Enter>.

Note: Selecting the "OFF" option will have no effect on the individual preset values. To change the value of any of the individual presets listed above, you must access each preset's corresponding menu item. When you change any of the preset default values individually, this menu item will *automatically* be turned off.

Swapping Pan and Tilt (SWAP)

This menu option swaps the pan motor and tilt motor operation. This option allows a perpendicularly-hung fixture to respond to pan and tilt movement commands in the same direction as a fixture hung normally (see Figure 2-2).

To swap pan and tilt motion:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "SET" menu.
3. Press <Enter>.

4. Scroll to the "SWAP" menu
5. Press <Enter>.

6. Scroll to "ON" to swap the fixture's pan and tilt motion, or "OFF" to return the fixture's pan and tilt motion to normal orientation.

or

7. Press <Enter>.

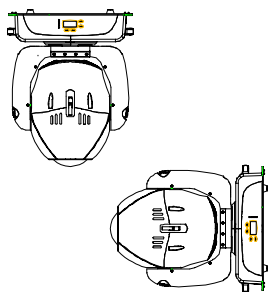


Figure 2-2. Perpendicularly-hung fixture.

Inverting Tilt (T/IN)

This menu item inverts the direction of the tilt motor, which allows a fixture standing upright (i.e., resting on its bottom panel) to respond to tilt movement commands in the same direction as a fixture hung normally (see Figure 2-3).

To invert the fixture's tilt motion:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "SET" menu.
3. Press <Enter>.

4. Scroll to the "T/IN" menu.
5. Press <Enter>.

6. Scroll to "ON" to invert the fixture's tilt motion, or "OFF" to return the fixture's tilt motion to normal orientation.
7. Press <Enter>.

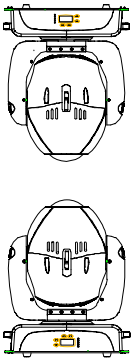


Figure 2-3. Inverted fixture.

Inverting Pan (P/IN)

This menu item inverts the direction of the pan motor, which allows opposing fixtures to respond to pan movement commands in the same direction (see Figure 2-4).

To invert the fixture's pan motion:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "SET" menu.
3. Press <Enter>.

4. Scroll to the "P/IN" menu.
5. Press <Enter>.

6. Scroll to "ON" to invert the fixture's pan motion, or "OFF" to return the fixture's pan motion to normal orientation.
7. Press <Enter>.

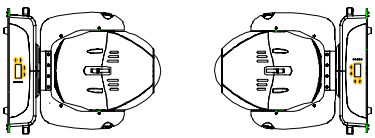


Figure 2-4. Opposing fixtures.

Changing the Display Output (DSPL)

This menu item allows you to manually change the appearance of the fixture's alphanumeric LED display. You can set the display on or off, or you can dim the display to reduce visibility. If you want to remotely change the display output (using a DMX controller), see "Control" on page 2-8.

To change the display output:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “SET” menu.
3. Press <Enter>.

4. Scroll to the “DSPL” menu.
5. Press <Enter>.

or

or

6. Scroll to “ON” to set the LED display to normal intensity, “OFF” to turn the LED display off, or “DIM” to reduce the LED display visibility.
7. Press <Enter>.

Inverting LED Characters (D/IN)

This menu item allows you to invert the orientation of the LED display’s alphanumeric characters. This option is useful if your fixture is standing upright (i.e., resting on its bottom panel on the floor).

To invert the LED display:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “SET” menu.
3. Press <Enter>.

4. Scroll to the “D/IN” menu.
5. Press <Enter>.

or

6. Scroll to “ON” to invert the fixture’s alphanumeric characters, or “OFF” to return the fixture’s alphanumeric characters to normal orientation.
7. Press <Enter>.

Setting the Lamp Warning Message (LMPL)

Use this menu item to enable your fixture to display the warning message “LAMP LIFE ERR” when the current lamp hours exceed 700. With this option enabled, after the current lamp hours exceed 800 hours, the fixture will display the warning message “LAMP OUT ERR.” Once the lamp is extinguished, the fixture will no longer strike the lamp until the current lamp is replaced and the current lamp hours are reset to zero (see “Replacing the Lamp” on page 4-7 or “Resetting Lamp Hours (L/RS)” on page 2-46).

To enable the lamp warning message:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “SET” menu.
3. Press <Enter>.

4. Scroll to the “LMPL” menu.
5. Press <Enter>.

or

6. Scroll to “ON” to enable the lamp warning message, or “OFF” to disable the lamp warning message.
7. Press <Enter>.

Inserting the Dark Blue Filter (DARK)

Use this menu item to insert the dark blue filter directly in the beam path when the shutter is closed to help dim the light path.

To insert the dark blue filter:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “SET” menu.
3. Press <Enter>.

4. Scroll to the “DARK” menu.
5. Press <Enter>.

or

6. Scroll to “ON” to insert the dark blue filter, or “OFF” to move the dark blue filer out of the beam path.
7. Press <Enter>.

Shutter Close with Data Loss (DLOS)

Use this menu item to determine how your fixture will react in the event of DMX data loss. You can set this menu item to close the shutter one second after data loss, or to keep the shutter open until the fixture is shut down.

To select a shutter reaction to data loss:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “SET” menu.
3. Press <Enter>.

4. Scroll to the “DLOS” menu.
5. Press <Enter>.

or

6. Scroll to “LONG” to close the shutter only when the fixture is shut down, or “SHRT” to close the shutter one second after data loss.
7. Press <Enter>.

Automating the Solenoids (AUTO)

Use this menu item to enable the solenoids and lock the fixture in the known position when the fixture is parked (see “Parking the Fixture (PARK)” on page 2-34).

To automate the solenoids when the fixture is parked:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “SET” menu.
3. Press <Enter>.

4. Scroll to the “SOLN” menu.
5. Press <Enter>.

6. Scroll to the “AUTO” menu (this will be the first option displayed).
7. Press <Enter>.

or

8. Scroll to “ON” to enable the solenoids to engage, or “OFF” to disable the solenoids when the fixture is parked.
9. Press <Enter>.

Centering the Solenoids (CNTR)

Use this menu item to set the centering position of the solenoids. This option is useful if your fixture has been serviced, and the solenoid loses its “home” position. To enable this option, you must first disconnect the data link from the fixture.

To set the centering position of the solenoids:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “SET” menu.
3. Press <Enter>.

4. Scroll to the “SOLN” menu.
5. Press <Enter>.

6. Scroll to the “CNTR” menu.
7. Press <Enter>.

or

8. Scroll to “PCEN” to select the pan solenoid., or “TCEN” to select the tilt solenoid.
9. Press <Enter>.
10. Scroll to a new centering position for the selected solenoid.
11. Press <Enter>.

Testing the Solenoids (TEST)

Use this menu item to set the test the solenoid movement. Selecting this option fires the solenoid, but does not move the fixture’s position. There is a one second delay with this option to prevent wear on the solenoids.

To test the solenoids:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “SET” menu.
3. Press <Enter>.

4. Scroll to the “SOLN” menu
5. Press <Enter>.

6. Scroll to the “TEST” menu.
7. Press <Enter>.

8. Scroll to one of the following options:

or

or

or

- “PIN” to retract the pan solenoid
- “POUT” to extend the pan solenoid
- “TIN” to retract the tilt solenoid
- “TOUT” to extend the tilt solenoid

9. Press <Enter>. After a one-second delay, the solenoid will respond to the selected option.

Parking the Fixture (PARK)

Use this menu item to manually park the fixture. If you want to remotely park the fixture (using a DMX controller), see “Control” on page 2-8.

When the fixture is parked, the fixture returns to the “known” position (180° tilt and 0° pan). If you automated the solenoids (see “Automating the Solenoids (AUTO)” on page 2-32), parking the fixture will also engage the solenoids and lock the fixture in the known position. This option is useful when you are ready to shut down the fixtures and pack them for transport.

To test the solenoids:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “SET” menu.
3. Press <Enter>.

4. Scroll to the “SOLN” menu.
5. Press <Enter>. You will see the “PARK” option (this is the only option displayed).

6. Press <Enter>. The alpha-numeric display will show “OK?”

7. Press <Enter>.*

*Note: This option has a five-second delay to avoid inadvertent changes. To park the fixture, you must press and hold the <Enter> button for at least five seconds.

Increasing the Pan/Tilt Movement (FAST)

Use this menu item to increase the speed of the fixture's pan/tilt movement. Enabling this option will yield increased speed but may compromise the fixture's positioning (i.e., cause the fixture to "skip" an assigned pan or tilt step).

To increase the pan/tilt movement:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "SET" menu.
3. Press <Enter>.

4. Scroll to the "FAST" menu.
5. Press <Enter>.

or

6. Scroll to "ON" to enable fast pan/tilt movement, or "OFF" to enable normal pan/tilt movement.
7. Press <Enter>.

Mode Menu (MODE)

The Mode menu allows you to choose user A or user B settings, copy settings and presets to user A or user B, and crossload software versions from one fixture to all other Studio Beam PC fixtures on the link. The procedures below are listed in the same order shown on the menu map (see Table 2-2 on page 2-10).

Setting the User Type (USER)

Use this menu item to change the fixture's user type from user A to user B or vice versa. Each user type includes 16 different presets (scenes) and the following fixture settings:

- start channel number
- pan invert status
- tilt invert status
- pan/tilt swap status
- LED display status
- LED display invert status
- lamp life warning status
- UV blacklight filter status
- shutter close with DMX data loss status
- automated solenoid status
- preset playback status

Changing the user type allows you to access 16 different scenes, and allows you to access a set of "default" fixture settings. For example, if your fixture's settings (listed above) are designed for a specific location in your truss and you need to move the fixture to a new location, you could change the user type to user "B" for

the settings needed at the new location, and change the user type back to user "A" when you move the fixture back to its original location.

To change the user type:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "MODE" menu.
3. Press <Enter>.

4. Scroll to the "USER" menu (this will be the first option displayed).
5. Press <Enter>.

or

6. Scroll to "A" to select user A settings, or "B" to select user B settings.
7. Press <Enter>.

Copying User Presets (PRST)

Use this menu item to copy the fixture's preset scenes from user A to user B or vice versa. Each user type includes 16 different presets which can be copied to a different user type.

Note: This options copies *all* 16 presets at one time. To copy just *one* preset, see "Copying an On-Board Memory Scene (COPY)" on page 2-48.

To copy user presets:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "MODE" menu.
3. Press <Enter>.

4. Scroll to the "USER" menu.
5. Press <Enter>.

6. Scroll to the "COPY" menu.
7. Press <Enter>.

8. Scroll to the "PRST" menu (this will be the first menu displayed).
9. Press <Enter>.

or

10. Scroll to "A → B" to copy user A presets to user B, or "B → A" to copy user B presets to user A.
11. Press <Enter>.

Copying User Settings (SETT)

Use this menu item to copy the fixture's user settings from user A to user B or vice versa. The user settings for each user type are listed in the section titled "Setting the User Type (USER)" on page 2-35.

Note: This options copies *all* user settings at one time.

To copy user settings:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “MODE” menu.
3. Press <Enter>.

4. Scroll to the “USER” menu.
5. Press <Enter>.

6. Scroll to the “COPY” menu.
7. Press <Enter>.

8. Scroll to the “SETT” menu.
9. Press <Enter>.

or

10. Scroll to “A → B” to copy user A presets to user B, or “B → A” to copy user B settings to user A.
11. Press <Enter>.

Copying User Presets and Settings (ALL)

Use this menu item to copy the fixture’s 16 user preset scenes and fixture settings from user A to user B or vice versa. The user settings for each user type are listed in the section titled “Setting the User Type (USER)” on page 2-35.

Note: This options copies *all* user settings and *all* 16 presets at one time.

To copy user presets and settings:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “MODE” menu.
3. Press <Enter>.

4. Scroll to the “USER” menu.
5. Press <Enter>.

6. Scroll to the “COPY” menu.
7. Press <Enter>.

8. Scroll to the “ALL” menu.
9. Press <Enter>.

or

10. Scroll to “A → B” to copy user A presets to user B, or “B → A” to copy all user B presets and settings to user A.
11. Press <Enter>.

Crossloading Fixture Software (XLD)

If you have a Studio Beam PC fixture with a newer software version, you can crossload the newer software to all other Studio Beam PC fixtures on the link.

To crossload software to all other Studio Beam PC fixtures on the link:

1. Disconnect any controllers, bypass any serial data distributors and/or data line optoisolators, and bypass or make sure that any fixtures using RS-422 communications (such as Dataflash® AF1000 xenon strobes and Intellabeam® fixtures) are located *after* the Studio Beam PC fixtures on the link. These devices will block communication with any other Studio Beam PC fixtures on the link.

1. On the crossloading fixture *only*, press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "MODE" menu.
3. Press <Enter>.

4. Scroll to the "XLD" option.
5. Press <Enter>. The fixture will upload its software to all other Studio Beam PC fixtures on the link.

The Transmit LED on the crossloading fixture will remain on (or flicker) and the Transmit and Receive LEDs on receiving fixtures will flicker while the crossload is in progress. The alphanumeric LED on the Studio Beam PC fixtures will display "UPLD" as they are receiving the software upload. When the crossload has finished successfully, "DONE" will appear briefly in the LED display of the crossloading fixture, and all other fixtures will home.

Note: If a new boot code was included with the newer software, the alphanumeric LED will display a "BOOT DIFF" error. To correct the boot code, you must copy the new boot code for each fixture (see "Copying the Boot Code (BOOT)" on page 2-39).

Test Menu (TEST)

The Test menu allows you to manually home the fixture, turn the lamp on or off, perform fixture self tests, and store new boot code information. If you are experiencing problems that you suspect are mechanical, you can perform fixture self tests to determine where the problem originates. The procedures below are listed in the same order shown on the menu map (see Table 2-2 on page 2-10).

Note: To see the effects of the self tests, the lamp must be on. If the lamp is off when you run the self test, the LED will display "LAMP" to indicate that the lamp is not struck, and the fixture will attempt to strike the lamp automatically.

Homing the Fixture (HOME)

This menu item allows you to manually home the fixture. If you want to remotely home the fixture (using a DMX controller), see "Control" on page 2-8.

To manually home the fixture:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "TEST" menu.
3. Press <Enter>.

4. Scroll to the "HOME" option (this will be the first option displayed).
5. Press <Enter>. The LED will alternately display "RST" and "HOME" while the fixture homes.

Turning the Lamp On or Off (LAMP)

This menu item allows you to manually strike or extinguish the lamp. If you want to remotely strike or extinguish the lamp (using a DMX controller), see "Control" on page 2-8.

To manually turn the lamp on or off:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "TEST" menu.
3. Press <Enter>.

4. Scroll to the "LAMP" menu.
5. Press <Enter>.

or

6. Scroll to "ON" to strike the lamp, or "OFF" to extinguish the lamp.
7. Press <Enter>.

Copying the Boot Code (BOOT)

When you upload software to Studio Beam PC fixtures, the newer software may contain a new boot code which must be copied to each fixture. This is apparent if the LED displays a "BOOT DIFF" error. *Do not remove power from the fixture while performing a boot copy.*

To accept and store the new boot code:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "TEST" menu.
3. Press <Enter>.

4. Scroll to the "BOOT" option.
5. Press <Enter>. The fixture will store the new boot code, then automatically home.

Performing Self Tests (SELF)

This menu item allows you to performs the following self tests:

- ALL - performs all of the self tests listed below
- PAN - moves the pan motor from 0° to 540°
- TILT - moves the tilt motor from 0° to 287°
- CYAN - divides the cyan color wheel into eight equal sections (positions) and rotates the cyan color wheel from position 1 through 8
- MAGN - divides the magenta color wheel into eight equal sections (positions) and rotates the magenta color wheel from position 1 through 8
- YELW - divides the yellow color wheel into eight equal sections (positions) and rotates the yellow color wheel from position 1 through 8
- BEAM - moves the beam shaping (lenticular wheel) from 0° to 359°
- FCUS - moves the aspheric lens through the entire beam angle range
- SHUT - performs strobe functions
- DIM - moves the dim flags from closed to fully open

To perform a self test:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “TEST” menu.
3. Press <Enter>.

4. Scroll to the “SELF” menu.
5. Press <Enter>.
6. Scroll to the desired option (listed above).
7. Press <Enter>. The fixture will perform the selected self test.
8. Press <Menu> to exit the test.

Note: The self tests will run continuously until you press <Menu> to exit the test.

Placing the Fixture in Setup Mode (S/UP)

This menu item allows you to place the fixture in setup mode so that you can mechanically home your fixture. A fixture that is out of home (i.e., the dim or frost flags loses position), will emit an unusually loud clicking noise when strobing or electronically homing. For more information on how to mechanically home the fixture, contact High End Systems customer service (see “Contacting High End Systems” on page ii).

To place the fixture in setup mode:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “TEST” menu.
3. Press <Enter>.

4. Scroll to the “S/UP” option.
5. Press <Enter>. When the LED displays “SET NOW,” mechanically home the fixture.
6. After mechanically homing the fixture, press any button. This causes the fixture to electronically home.

Testing the LED Display (DISP)

To perform a self-test on the alphanumeric LED display:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “TEST” menu.
3. Press <Enter>.

4. Scroll to the “DISP” option.
5. Press <Enter>. The alphanumeric display will run through its self test.
6. Press <Menu> to exit the test.

Note: The self test will run continuously until you press <Menu> to exit the test.

Changing Encoder Operation (ENCD)

Use this menu option to disable the encoders which work to automatically correct the fixture’s pan and tilt position if the fixture is moved from its programmed position. This option is helpful if you want to perform maintenance on the fixture and you want to prevent the fixture from repeatedly trying to correct its position.

To perform a self-test on the LED display:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “TEST” menu.
3. Press <Enter>.

4. Scroll to the “ENCD” option.
5. Press <Enter>.

or

6. Scroll to “ON” to enable the encoders, or “OFF” to disable the encoders.
7. Press <Enter>.

Information Menu (INFO)

The Information menu allows you to view current fixture information such as internal temperature, lamp hours, fixture hours, lamp strikes, software version, DMX errors, and DMX data for any other device on the link. You can also reset the lamp hours, lamp strikes and fixture hours. The procedures below are listed in the same order shown on the menu map (see Table 2-2 on page 2-10).

Viewing Sensor Information (SENS)

This menu option allows you to view whether a specified sensor is working correctly or to view encoder position values. If you receive a "SENS ERR" error message on the alphanumeric display, this information may help you determine where the problem originates (see "Alphanumeric Display Error Messages" on page 3-1).

Sensor information is available for the following:

- SEN1 - magenta and beam shaping (lenticular) wheels
- SEN2 - cyan and yellow color wheels
- TILT - tilt
- PAN - pan

Encoder position values are available for the following:

- TPOS - tilt encoder
- PPOS - pan encoder

To view sensor and encoder information:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "INFO" menu.
3. Press <Enter>.

4. Scroll to the "SENS" menu.
5. Press <Enter>.
6. Scroll to the desired sensor or encoder (listed above).
7. Press <Enter>. If you are viewing a sensor, the LED will display "ON" if the sensor is obstructed (by a wheel tab), or "OFF" if the sensor is not obstructed (by a pan or tilt notch). If you are viewing an encoder, the LED will display the current numeric position of the encoder.

Viewing DMX Status and Construct Values (FIXT)

This menu option allows you to view DMX status and construct values for the fixture. You may want to view the DMX status and construct values for a fixture if you are having a particular problem with a fixture; for example, a color wheel that does not respond to commands from the controller.

The following DMX status information is available for viewing:

- BRKS - framing errors with value of zero (i.e. DMX breaks)
- FE - framing errors with a non-zero value (i.e. errors in data transmission)
- OV - overruns (changing values could indicate data link/connector problems)
- STRT - start code

The following construct values are available for viewing:

- PANH - high 8-bit pan value
- PANL - low 8-bit pan value
- TLTH - high 8-bit tilt value
- TLTL - low 8-bit tilt value
- COLC - color control value
- CYAN - cyan color wheel position
- MAGN - magenta color wheel position
- YELW - yellow color wheel position
- BEAM - beam shaping (lenticular) wheel position
- ZOOM - aspheric lens (beam angle) position
- FRST - frost flag position value
- SHUT - shutter strobe value
- DIM - shutter dim flag value
- MSPD - MSpeed time value
- MACR - macro value
- CNTL - control channel value

To view the DMX status and construct values:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “INFO” menu.
3. Press <Enter>.

4. Scroll to the “DMX” menu.
5. Press <Enter>.

6. Scroll to the “FIXT” menu (this will be the first option displayed).
7. Press <Enter>.
8. Scroll to the desired DMX status or construct (listed above).
9. Press <Enter>. The LED will display the selected DMX status or construct value.

If you are having a particular problem with the fixture, follow the steps above to select a construct and view its value. After noting the value of the construct you selected, use your controller to change that construct’s value.

If the value changes on the fixture’s LED display, but the fixture still does not respond, contact High End Systems customer service in one of the ways shown in the section titled “Contacting High End Systems” on page ii.

However, if the value does ***not*** change on the fixture’s LED display, remove the fixture from the DMX link and try to change the construct’s value using the fixture’s menu system. If the fixture then functions normally, the problem was likely with the DMX link. Otherwise, contact High End Systems customer service (see “Contacting High End Systems” on page ii).

Viewing DMX Data for Another Device (DATA)

This procedure allows you to use a Studio Beam PC fixture to view DMX channel values for other devices on the DMX link. You can use this menu option either for testing devices that do not have built-in DMX diagnostics, or for fixtures that are physically inconvenient to monitor directly.

To view DMX data for another device on the DMX link:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “INFO” menu.
3. Press <Enter>.

4. Scroll to the “DMX” menu.
5. Press <Enter>.

6. Scroll to the “DATA” menu.
7. Press <Enter>.

8. Scroll to the desired DMX channel (C001 - C512).

to

9. Press <Enter>. The LED will display the selected channel’s DMX value.

If you are experiencing a particular problem with a device on the link, follow the steps above to select a DMX channel in the device’s channel range and view its DMX value. After noting the value of the channel you selected, use your controller to change that channel’s value.

If the value of the DMX channel you selected does not change, there may be a problem with the DMX cable or your transmitting device (i.e. controller).

However, if the DMX channel value changes, but the device does not respond, the device may be faulty. Consult the documentation provided with that device for more information.

Viewing the Current Logic Board Temperature (PCB)

This menu option allows you to view the current ambient temperature at the logic board inside the fixture.

To view the logic board temperature:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “INFO” menu.
3. Press <Enter>.

4. Scroll to the “TEMP” menu.
5. Press <Enter>.

6. Scroll to the “PCB” option.
7. Press <Enter>. The LED will display the current internal temperature of the fixture’s logic board in degrees centigrade.

   The maximum temperature for the logic board is 85 C. If this maximum temperature is exceeded, the fixture will shut down and the aplhanumeric display will show “PCB TEMP ERR.” For more information, see “Alphanumeric Display Error Messages” on page 3-1.

Viewing the Current Fixture Head Temperature (HEAD)

This menu option allows you to view the current ambient temperature inside the fixture’s head.

To view the fixture’s head temperature:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “INFO” menu.
3. Press <Enter>.

4. Scroll to the “HEAD” option.
5. Press <Enter>. The LED will display the current internal temperature of the fixture’s head in degrees centigrade.

   The maximum temperature for the fixture head is 100 C. If this maximum temperature is exceeded, the fixture will shut down and the alphanumeric display will show “HEAD TEMP ERR.” For more information, see “Alphanumeric Display Error Messages” on page 3-1.

Resetting Fixture Hours (F/RS)

This menu item allows you to reset the recorded number of hours the fixture has been on.

To reset the fixture hours to zero:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “INFO” menu.
3. Press <Enter>.

4. Scroll to the “F/RS” option.
5. Press <Enter>*. The LED will display “0000” when the fixture hours are reset.

   *Note: This option has a five-second delay to avoid inadvertent changes. To reset the fixture hours, you must press and hold the <Enter> button for at least five seconds.

Viewing the Current Fixture Hours (F/HR)

To view the number of hours the fixture has been on since this option was reset:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “INFO” menu.
3. Press <Enter>.

4. Scroll to the “F/HR” option.
5. Press <Enter>. The LED will display the number of hours the fixture has been on.

Resetting Lamp Hours (L/RS)

This menu item allows you to track the number of hours the current lamp has been operating. You should reset the lamp hours each time you replace the lamp (see “Replacing the Lamp” on page 4-7)

To reset the current lamp hours to zero:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “INFO” menu.
3. Press <Enter>.

4. Scroll to the “L/RS” option.
5. Press <Enter>*. The LED will display “0000” when the lamp hours are reset.

*Note: This option has a five-second delay to avoid inadvertent changes. To reset the lamp hours, you must press and hold the <Enter> button for at least five seconds.

Viewing the Number of Current Lamp Strikes (L/ST)

To view the number of times the fixture has attempted to strike the current lamp:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “INFO” menu.
3. Press <Enter>.

4. Scroll to the “L/ST” option.
5. Press <Enter>. The LED will display the number of times the fixture has struck the current lamp.

Note: Lamp strikes are automatically reset when the lamp hours are reset (see “Resetting Lamp Hours (L/RS)” on page 2-46).

Viewing the Current Lamp Hours (L/HR)

To view the number of hours the current lamp has been on:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "INFO" menu.
3. Press <Enter>.

4. Scroll to the "L/HR" option.
5. Press <Enter>. The LED will display the number of hours the current lamp has been on.

Viewing the Current Software Version (VER)

To view the current software version:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "INFO" menu.
3. Press <Enter>.

4. Scroll to the "VER" option.
5. Press <Enter>. The LED will display the fixture's current software version.

Note: The software version is also displayed when you exit the menu system (see "Alphanumeric Display Error Messages" on page 3-1).

Preset Menu (PRST)

The Preset menu allows you to turn preset playback off or on, view which scene is currently playing, create/edit a scene using the on-board memory to program the fixture for stand-alone operation, copy a scene from the on-board memory to another scene, and capture a scene from your controller to the on-board memory. This menu also allows you to enable the factory-programmed preset sequence (self-demo). The procedures below are listed in the same order shown on the menu map (see Table 2-2 on page 2-10).

Setting Preset Playback (PLAY)

This menu option allows you to view which scene is currently playing in preset playback mode or turn preset playback on or off. This menu option can be accessed for either user type A or user type B. However, you must *first* set the fixture to the desired user type - either user A or user B. For more information, see "Setting the User Type (USER)" on page 2-35.

To set preset playback on or off, or to view the current scene:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "PRST" menu.
3. Press <Enter>.

4. Scroll to the “PLAY” menu (this will be the first menu displayed).
5. Press <Enter>.

or

or

6. Scroll to “ON” to set preset playback on, “OFF” to set preset playback off, or “SCN” to display which scene is currently playing.
7. Press <Enter>.

Note: Scene 1 *must* be programmed before the fixture can play back scenes.

Editing or Creating an On-Board Memory Scene (EDIT)

This menu item allows you to select a scene to edit or create using the fixture’s on-board scene memory. Using this menu option, you can change the value of any construct in any of the on-board scenes. For detailed information on editing or creating a scene, see “Step-By-Step Example” on page 2-50.

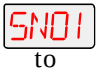
This menu option can be accessed for either user type A or user type B. However, you must *first* set the fixture to the desired user type - either user A or user B. For more information, see “Setting the User Type (USER)” on page 2-35.

To select a scene to create or edit:

1. Press and hold <Menu> until “ADDR” appears on the LED display.

2. Scroll to the “PRST” menu.
3. Press <Enter>.

4. Scroll to the “EDIT” menu.



5. Press <Enter>.

to

6. Scroll to the scene you want to create or edit (SN01 - SN16).
7. Press <Enter>.

Copying an On-Board Memory Scene (COPY)

1. Press and hold <Menu> until “ADDR” appears on the LED display.

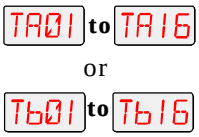
2. Scroll to the “PRST” menu.
3. Press <Enter>.

4. Scroll to the “COPY” menu.
5. Press <Enter>. The LED will display “FROM.”

6. Press <Enter>.

or

7. Scroll to the scene you want to copy from (source scene) for either user A (“FA01” - “FA16”) or user B (“FB01” - “FB16”).
8. Press <Enter>. The LED will display “TO.”
9. Press <Enter>.



10. Scroll to the scene you want to copy to (destination scene) for either user A ("TA01" - "TA16") or user B ("TB01" - "TB16").
11. Press <Enter>. The fixture will copy the desired scene to the selected scene location. When the fixture finishes the copy successfully, "DONE" will appear briefly in the fixture's LED display.

Capturing a Preset Scene (CAPT)

Preset capturing is a way to automate the creation of scenes on multiple Studio Beam PC fixtures connected to a DMX 512 link. Use a DMX controller to create a scene, then save (capture) the scene into a fixture's presets to play back the scene without the controller. When capturing a scene into a fixture's presets, all construct values must be constant (i.e., there cannot be any pan/tilt movement or scene-to-scene sequencing).

> Note: You must use the fixture's on-board scene memory to *manually* select values for the XFAD and DLAY constructs, since a DMX controller will not transmit those construct values.

This menu option can be accessed for either user type A or user type B. However, you must *first* set the fixture to the desired user type - either user A or user B. For more information, see "Setting the User Type (USER)" on page 2-35.

After creating a scene with your DMX controller, follow the instructions below for each fixture on which you want to capture preset scenes:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "PRST" menu.
3. Press <Enter>.

4. Scroll to the "CAPT" menu.
5. Press <Enter>.

6. Scroll to the scene you want to copy the preset scene to (destination scene) (SN01 - SN16).
7. Press <Enter>. The fixture will copy the DMX-512 controller's preset scene to the selected scene on your fixture's on-board 16 scene memory for either user A or user B. When the fixture finishes the capture successfully, "DONE" will appear briefly in the fixture's LED display.

Enabling the Preset Default (Self-Demo) (DFLT)

This menu item enables the factory-programmed preset sequence or fixture self-demo. **Enabling this menu item will erase any pre-programmed scenes or construct values on your fixture's on-board memory**.

This menu option can be accessed for either user type A or user type B. However, you must *first* set the fixture to the desired user type - either user A or user B. If you have pre-programmed scenes you do not wish to erase, you can set the fixture

to a different user type (A or B) and then enable the preset default for the *other* user type (see "Setting the User Type (USER)" on page 2-35).

To enable the self-demo:

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "PRST" menu.
3. Press <Enter>.

4. Scroll to the "DFLT" menu.

5. Press <Enter>. The LED display will show "OK?"
6. Press <Enter>. The fixture will perform the self-demo.

   Note: To play the fixture's self-demo, you must set preset playback on (see "Setting Preset Playback (PLAY)" on page 2-47).

7. Press <Menu> to exit the self-demo.

   Note: The self-demo will run continuously until you press <Menu> to exit the test.

Step-By-Step Example

Follow the example below to create a sample scene using the fixture's menu system to choose a value for each of the available constructs. For more information on available construct parameters, see "Menu Map" on page 2-10.

Choosing a Scene to Create/Edit

1. Press and hold <Menu> until "ADDR" appears on the LED display.

2. Scroll to the "PRST" menu.
3. Press <Enter>.

4. Scroll to the "EDIT" menu.
5. Press <Enter>.

6. Scroll to the scene you want to create (in this example, "SN01").
7. Press <Enter>.

Selecting a Shutter Value (SHUT)

1. Scroll to the "SHUT" construct (this will be the first construct displayed).
2. Press <Enter>.

3. Scroll to the desired shutter value (in this example, "OPEN").
4. Press <Enter>.

Selecting a Dim Value (DIM)

1. Scroll to the “DIM” construct.
2. Press <Enter>.

3. Scroll to the desired dim value (in this example, “D255”).
4. Press <Enter>.

Selecting a Pan Value (PAN)

1. Scroll to the “PAN” construct.
2. Press <Enter>.

3. Scroll to the desired pan value from “-49.9” to “+49.9” (in this example, “+30.5”).
4. Press <Enter>.

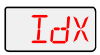
Selecting a Tilt Value (TILT)

1. Scroll to the “TILT” construct.
2. Press <Enter>.

3. Scroll to the desired tilt value from “-49.9” to “+49.9” (in this example, “-20.3”).
4. Press <Enter>.

Choosing a Color Wheel Control Value (COLC)

1. Scroll to the “COLC” construct
2. Press <Enter>.



3. Scroll to the desired color wheel control value (in this example, “IDX”).
4. Press <Enter>.

Selecting a Cyan Wheel Position (CYAN)

1. Scroll to the “CYAN” construct.
2. Press <Enter>.

3. Scroll to the desired cyan color wheel position value (in this example, “OPEN”).
4. Press <Enter>.

Selecting a Magenta Wheel Position (MAGN)

1. Scroll to the “MAGN” construct.
2. Press <Enter>.

3. Scroll to the desired magenta color wheel position value (in this example, “M 1”).
4. Press <Enter>.

Selecting a Yellow Wheel Position (YELW)

1. Scroll to the “YELW” construct.
2. Press <Enter>.

3. Scroll to the desired yellow color wheel position value (in this example, “S 3”).
4. Press <Enter>.

Selecting a Beam Shaping (Lenticular) Wheel Position (BEAM)

1. Scroll to the “FX” construct.
2. Press <Enter>.

3. Scroll to the desired effects wheel position value (in this example, “WR12”).
4. Press <Enter>.

Selecting a Zoom (Beam Angle) Position (ZOOM)

1. Scroll to the “ZOOM” construct.
2. Press <Enter>.

3. Scroll to the desired zoom value (in this example, “255” for a 26° beam angle).
4. Press <Enter>.

Selecting a Frost Flag Position (FRST)

1. Scroll to the “FRST” construct.
2. Press <Enter>.

3. Scroll to the desired frost flag position value (in this example, “SR06”).
4. Press <Enter>.

Setting an MSpeed Value (MSPD)

1. Scroll to the “MSPD” construct.
2. Press <Enter>.

3. Scroll to the desired MSpeed (in this example, “1.5”) in decimal seconds.
4. Press <Enter>.

Note: In this example, the MSpeed value only affects the pan and tilt constructs, because the pan and tilt values default to MSpeed time, and no other constructs with MSpeed values were chosen.

Choosing a Macro (MACR)

1. Scroll to the “MACR” construct.
2. Press <Enter>.

3. Scroll to the desired macro value (in this example, “MCOF”).
4. Press <Enter>.

Note: For a description of available macros, see “Macro Descriptions” on page A-6.

Setting a Crossfade Value (XFAD)

1. Scroll to the “XFAD” construct.
2. Press <Enter>.

3. Scroll to the desired crossfade value in increments of 0.1 or 1 (in this example, “1.5”).
4. Press <Enter>.

Note: The crossfade value will affect the DIM and FCUS constructs. Set the unit of time used for crossfade (seconds, minutes, or hours) using the TIME construct.

Setting a Delay Value (DLAY)

1. Scroll to the “DLAY” construct.
2. Press <Enter>.

3. Scroll to the desired delay value in increments of 0.1 or 1 (in this example, “6.0”).
4. Press <Enter>.

Note: The delay value determines the length of the scene. If you want all motor transitions to be completed before the next scene begins, XFAD or MSPD must be less than or equal to DLAY. If XFAD or MSPD is *longer* than DLAY, the motor movement will not be completed before the next scene begins, which could produce undesirable results - such as no light output during the scene.

Set the unit of time used for delay (seconds, minutes, or hours) using the TIME construct.

Setting the Time Unit (TIME)

1. Scroll to the “TIME” construct.
2. Press <Enter>.

3. Scroll to the desired time value (in this example, “SEC”).
4. Press <Enter>.

Note: This construct sets the unit of time used in for the XFAD and DLAY values.

Erasing the Scene (ZERO)

1. Scroll to the “ZERO” construct.
2. Press <Enter>. The LED will display “OK?”
3. In this example, press the <Menu> button. Pressing the <Menu> button will exit this construct and leave the current scene as programmed. Pressing the <Enter> button will erase the current scene and mark the end of a loop.

Creating a Loop

A loop is a series of programmed scenes that continuously plays in sequential order. To create a loop, you must first create two or more contiguous scenes (see “Step-By-Step Example” on page 2-50). After you have created your scenes, go to the *next available* scene and choose the “ZERO” menu option to erase any programmed construct values and mark the end of the loop.

Note: If you program all available on-board scenes, you ***do not*** have to mark the end of the loop. When preset playback is set on, the fixture will automatically loop after playback of all programmed scenes.

Playing Back a Loop

To play back a loop, you must set preset playback on for each fixture (see “Setting Preset Playback (PLAY)” on page 2-47). When preset playback is set on, your fixture will automatically begin playing back the first scene and continue through the loop.

Note: You *must* program scene 1 to enable preset playback.

The fixture has two ways to indicate that preset playback is on. First, the display will show a dot in the lower right corner (see Figure 2-5). Second, during normal operation, the seven-segment LED cycled information will be changed to display “PRST” instead of the fixture’s software version (“Vxxx”).

If power is removed during playback, when power is reapplied, the fixture will home and begin playback at the first scene. To stop playback, you must manually set playback mode off (see “Setting Preset Playback (PLAY)” on page 2-47).

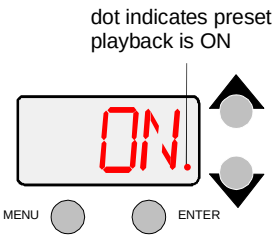


Figure 2-5. Preset playback indicator.

Synchronizing Preset Playback

After creating one or more scenes for your fixtures, you can synchronize the preset playback for all Studio Beam PC, Studio Spot™ 250, Studio Color® 250, Studio Color® 575, Studio Spot™ 575, EC-1™, ES-1™, Technobeam®, Technopro™, Technoray™, Color Pro® HX, HXi, or FX fixtures in the link.

Note: Synchronizing preset playback is applicable for fixtures operating in stand-alone mode only. Do not include a DMX controller in the link while synchronizing preset scene playback.

Synchronizing playback allows you to set all applicable fixtures to a "master clock" so that all fixtures have a definite, synchronized starting point when playing back their sequences (or loops). It is the master fixture (the fixture assigned DMX start channel 1) which determines the sequence length for *all* the other fixtures in the link (slave fixtures), regardless of the number of programmed scenes or the sequence length of the individual slave fixtures.

When the master fixture reaches the end of its last scene, *all* fixtures will restart at scene 1 (regardless of whether the slave fixtures have finished playing their scenes) and *all* the "clocks" will be reset to zero. For example, if a slave fixture has a shorter sequence length, it will continuously repeat its sequence until the master fixture resets all the clocks (see Figure 2-6). If a slave fixture has a longer sequence length, it will restart at scene 1 before it completes its entire sequence.

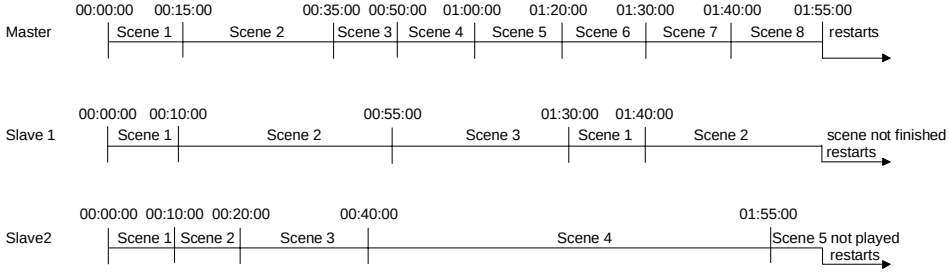


Figure 2-6. Example of synchronized playback.

To enable synchronized playback:

1. Link the fixtures you want to synchronize (see "Linking Fixtures" on page 1-3). Make sure you terminate *both* the first and the last fixtures in the link and that there are no DMX controllers on the link.
2. Assign one fixture as the master fixture by assigning it a unique DMX start channel 1 or fixture number 1 (see "Assigning a DMX Start Channel" on page 1-9). Make sure *no other fixture* on the link is assigned DMX start channel 1 or fixture number 1.
3. Set preset playback on for all fixtures on the link (see "Setting Preset Playback (PLAY)" on page 2-47).

Chapter 3 Troubleshooting

This chapter lists typical symptoms and solutions for problems you might experience when using your Studio Beam PC fixture. If the problem you are experiencing is not listed in this chapter or the solution listed does not solve the problem, contact High End Systems customer service (see “Contacting High End Systems” on page ii).

Troubleshooting

Alphanumeric Display Error Messages

The front panel on Studio Beam PC fixtures has an alphanumeric LED (Light Emitting Diode) display, three status LEDs, and four menu navigation buttons (see Figure 3-1).

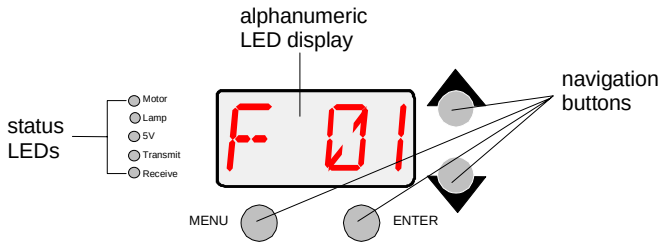


Figure 3-1. Front panel display.

Under normal circumstances, the alphanumeric display cycles between displaying the fixture’s software version (“Vxxx”), the fixture name (“SBPC”), and the fixture’s DMX start channel (“Cxxx”). However, if you are experiencing problems with your fixture, the status LEDs and/or alphanumeric display can also provide insight on where the problem is originating.

Table 3-1. Alphanumeric Display Error Messages

Display Message	Problem	Solution
BOOT DIFF	The fixture’s normal boot code does not match the backup boot code.	Update the boot code (see “Copying the Boot Code (BOOT)” on page 2-39).

Table 3-1. Alphanumeric Display Error Messages

Display Message	Problem	Solution
CYAN SENS	The fixture cannot find the cyan color wheel home slot due to a possible: • broken color wheel • broken belt • faulty motor • faulty motor driver • broken wire connecting the sensor or cyan wheel motor to the logic board • bad sensor	• Replace the wheel (see “Replacing a Wheel” on page 4-9). • Contact High End Systems (see “Contacting High End Systems” on page ii).
EFCT SENS	The fixture cannot find the beam shaping (lenticular) wheel home slot due to a possible: • broken lenticular wheel • broken belt • faulty motor • faulty motor driver • broken wire connecting the sensor or lenticular wheel motor to the logic board • bad sensor	• Replace the wheel (see “Replacing a Wheel” on page 4-9). • Contact High End Systems (see “Contacting High End Systems” on page ii).
EMEM USER	The fixture lost the assigned user setting and will automatically default to user A.	If the fixture was set to user B, reassign the user setting (see “Setting the User Type (USER)” on page 2-35).
EMEM CHNL	The fixture lost the assigned DMX start channel and will automatically default to DMX start channel 1.	If the fixture was set to any start channel other than 1, reassign the DMX start channel (see “Assigning a DMX Start Channel” on page 1-10).
EMEM PINV	The fixture lost the pan invert setting and will default to non-inverted.	If the fixture was set to pan invert, reassign the pan invert setting (see “Inverting Pan (P/IN)” on page 2-30).
EMEM TINV	The fixture lost the tilt invert setting and will default to non-inverted.	If the fixture was set to tilt invert, reassign the tilt invert setting (see “Inverting Tilt (T/IN)” on page 2-30).

Table 3-1. Alphanumeric Display Error Messages

Display Message	Problem	Solution
EMEM SWAP	The fixture lost the pan/tilt swap setting and will default to non-swapped.	If the fixture was set to pan/tilt swap, reassign the pan/tilt swap setting (see “Swapping Pan and Tilt (SWAP)” on page 2-29).
EMEM DINV	The fixture lost the display invert setting and will default to non-inverted	If the fixture was set to display invert, reassign the display invert setting (see “Inverting LED Characters (D/IN)” on page 2-31).
EMEM MODE	The fixture lost the mode setting (DMX control or preset playback) and will default to DMX control.	If the fixture was set to preset playback, reassign the mode setting (see “Setting Preset Playback (PLAY)” on page 2-47).
EMEM TMOD	The fixture lost the test mode setting (*Factory Use Only*) and will default to normal operation.	Not Applicable.
EMEM LHRS	The fixture lost the number of lamp hours and will default to zero.	Not Applicable.
EMEM FHRS	The fixture lost the number of fixture hours and will default to zero.	Not Applicable.
EMEM L/ST	The fixture lost the number of lamp strikes and will default to zero.	Not Applicable.
EMEM DPLY	The fixture lost the display setting and will default to on and bright.	If the display was set to off or dim, reassign the display setting (see “Changing the Display Output (DSPL)” on page 2-30).
EMEM FMOD	The fixture lost the fast pan and tilt mode setting and will default to normal pan and tilt mode.	If the fixture was set to fast pan and tilt, reassign the pan and tilt mode setting (see “Increasing the Pan/Tilt Movement (FAST)” on page 2-35).
EMEM DMOD	The fixture lost the dark mode setting and will default to non-dark mode.	If the fixture was set to dark, reassign the dark mode setting (see “Inserting the Dark Blue Filter (DARK)” on page 2-32).

Table 3-1. Alphanumeric Display Error Messages

Display Message	Problem	Solution
EMEM LMPL	The fixture lost the lamp life limitation setting and will default to unlimited lamp life.	If the fixture was set to lamp life limitation, reassign the lamp life setting (see “Setting the Lamp Warning Message (LMPL)” on page 2-31).
EMEM DLOS	The fixture lost the DMX data loss setting and will default to short mode.	If the fixture was set to long mode, reassign the DMX data loss setting (see “Shutter Close with Data Loss (DLOS)” on page 2-32).
EMEM SOLN	The fixture lost the automatic solenoid setting and will default to automatic solenoids off.	If the fixture was set to automate the solenoids, reassign the automatic solenoid setting (see “Automating the Solenoids (AUTO)” on page 2-32).
EMEM PANC	The fixture lost the solenoid centering pan value and will default to a mid-range value (which may or may not allow the solenoid to engage properly).	If the pan solenoid is no longer engaging properly, reassign the pan solenoid centering value (see “Centering the Solenoids (CNTR)” on page 2-33).
EMEM TLTC	The fixture lost the solenoid centering tilt value and will default to a mid-range value (which may or may not allow the solenoid to engage properly).	If the tilt solenoid is no longer engaging properly, reassign the tilt solenoid centering value (see “Centering the Solenoids (CNTR)” on page 2-33).
ERSE FLSH	One or more fixtures on the data link has failed to erase the flashrom in a suitable amount of time.	• Attempt another software crossload (see “Crossloading Fixture Software (XLD)” on page 2-38). • Contact High End Systems (see “Contacting High End Systems” on page ii).

Table 3-1. Alphanumeric Display Error Messages

Display Message	Problem	Solution
HEAD TEMP	The temperature in the fixture head has exceeded the maximum permissible level due to: • a bad fan • excessive ambient temperatures • blockage in the fan vents on the back of the fixture head • a broken wire connecting the fan to the logic board. The fixture will automatically turn the lamp and motors off.	• Reduce the ambient temperature around the fixture and/or remove any blockage from the fixture's fan vents. • Contact High End Systems (see "Contacting High End Systems" on page ii
INIT SEN1	The fixture cannot clear sensor 1 (magenta color wheel and beam shaping (lenticular) wheel) due to a possible: • motor failure • motor driver failure • bad sensor • break in the wires connecting the motors or sensor to the logic board	Contact High End Systems (see "Contacting High End Systems" on page ii).
INIT SEN2	The fixture cannot clear sensor 2 (yellow and cyan color wheels) due to a possible: • motor failure • motor driver failure • bad sensor • break in the wires connecting the motors or sensor to the logic board	Contact High End Systems (see "Contacting High End Systems" on page ii).
LAMP LIFE	The fixture's lamp life limitation setting was enabled and the current lamp has exceeded 700 hours.	This message is only a warning. No action must be taken until this message changes to "LAMP OUT."

Table 3-1. Alphanumeric Display Error Messages

Display Message	Problem	Solution
LAMP MISS	• The fixture cannot detect the temperature readback from the thermometer in the fixture head. • The lamp cap is not installed on the fixture. • There is a broken wire or loose connector between the thermometer and the logic board. • The lamp interlock in the head has failed.	• Make sure that the lamp cap is installed on the fixture (see "Replacing the Lamp" on page 4-7). The lamp will not strike if the lamp plate is removed from the fixture. If the lamp is on when the lamp plate is removed, the lamp will be extinguished. If the lamp was on when the lamp plate was removed, the lamp will be struck again 30 seconds after the lamp plate is reinstalled. • Contact High End Systems (see "Contacting High End Systems" on page ii).
LAMP OUT	The fixture's lamp life limitation setting was enabled and the current lamp has exceeded 800 hours. The fixture can no longer strike the lamp.	Replace the lamp (see "Replacing the Lamp" on page 4-7) and reset the lamp hours (see "Resetting Lamp Hours (L/RS)" on page 2-46).
LAMP STAT	Because of an unexpected electrical event, the fixture cannot determine the current status of the lamp.	• Home the fixture (see "Homing the Fixture (HOME)" on page 2-39). • Contact High End Systems (see "Contacting High End Systems" on page ii).
LAMP TOUT	The fixture has unsuccessfully attempted to strike the lamp.	• Allow the fixture to cool, then attempt to manually strike the lamp (see "Turning the Lamp On or Off (LAMP)" on page 2-39). • Replace the lamp (see "Replacing the Lamp" on page 4-7). • Contact High End Systems (see "Contacting High End Systems" on page ii).

Table 3-1. Alphanumeric Display Error Messages

Display Message	Problem	Solution
LINK BUSY	Two fixtures on the same like are both attempting to transmit data during preset playback or software crossloads.	Disconnect any controllers, bypass any serial data distributors and/or data line optoisolators, and bypass or make sure that any fixtures using RS-422 communications (such as Dataflash® AF1000 xenon strobes and Intellabeam® fixtures) are located *after* the Studio Beam PC fixtures on the link. These devices block communication with any other Studio Beam PC fixtures on the link.
LINK EMTY	The fixture is attempting to crossload software but cannot find any suitable fixtures on the data link.	• Make sure that all data cables are good and that all receiving fixtures are connected to the data cable and are powered on. • Contact High End Systems (see "Contacting High End Systems" on page ii).
MAGN SENS	The fixture cannot find the magenta color wheel home slot due to a possible: • broken color wheel • broken belt • faulty motor • faulty motor driver • broken wire connecting the sensor or magenta wheel motor to the logic board • bad sensor	• Replace the wheel (see "Replacing a Wheel" on page 4-9). • Contact High End Systems (see "Contacting High End Systems" on page ii).
PAN ENCD	The fixture has detected a pan error and cannot correct its position due to a: • physical obstruction • broken belt • bad pan encoder • bad encoder wheel • broken wire connecting the encoder to the logic board	• Remove the object (externally or internally) that is blocking the fixture's pan movement and home the fixture (see "Homing the Fixture (HOME)" on page 2-39). • Contact High End Systems (see "Contacting High End Systems" on page ii).

Table 3-1. Alphanumeric Display Error Messages

Display Message	Problem	Solution
PAN SENS	The fixture cannot find the pan home slot due to a possible: • broken belt • faulty motor • faulty motor driver • broken wire connecting the sensor or pan motor to the logic board • bad sensor	Contact High End Systems (see “Contacting High End Systems” on page ii).
PCB TEMP	The temperature in the top box has exceeded the maximum permissible level due to a bad fan, excessive ambient temperatures, blockage in the fan vents, or a broken wire connecting the fan to the logic board. The fixture will automatically turn the lamp and motors off.	• Reduce the ambient temperature around the fixture and/or remove any blockage from the fixture’s fan vents. • Contact High End Systems (see “Contacting High End Systems” on page ii).
PRST LOST	The fixture failed to read preset data from non-volatile memory.	Reassign the preset scenes’ construct values (see “Editing or Creating an On-Board Memory Scene (EDIT)” on page 2-48).
PRGM TIME	One or more fixtures on the data link has failed to program the flashrom in a suitable amount of time.	• Attempt another software crossload (see “Crossloading Fixture Software (XLD)” on page 2-38). • Contact High End Systems (see “Contacting High End Systems” on page ii).
TMP1 LOST	The fixture cannot detect the temperature readback from the thermometer on the PCB.	Contact High End Systems (see “Contacting High End Systems” on page ii).

Table 3-1. Alphanumeric Display Error Messages

Display Message	Problem	Solution
TILT ENCD	The fixture has detected a tilt error and cannot correct its position due to a physical obstruction, broken belt, bad tilt encoder or encoder wheel, or a broken wire connecting the encoder to the logic board.	• Remove the object (externally or internally) that is blocking the fixture's tilt movement and home the fixture (see "Homing the Fixture (HOME)" on page 2-39). • Contact High End Systems (see "Contacting High End Systems" on page ii).
TILT SENS	The fixture cannot find the tilt home slot due to a possible broken belt, faulty motor or motor driver, broken wire connecting the sensor or tilt motor to the logic board, or a bad sensor.	Contact High End Systems (see "Contacting High End Systems" on page ii).
UPLD	The software upload or crossload was interrupted and the fixture is held in boot mode.	• Make sure the fixture is properly connected to both data and power cables, then attempt another software crossload (see "Crossloading Fixture Software (XLD)" on page 2-38). • Contact High End Systems (see "Contacting High End Systems" on page ii).
YEL SENS	The fixture cannot find the yellow color wheel home slot due to a possible broken color wheel, broken belt, faulty motor or motor driver, broken wire connecting the sensor or yellow wheel motor to the logic board, or a bad sensor.	• Replace the wheel (see "Replacing a Wheel" on page 4-9). • Contact High End Systems (see "Contacting High End Systems" on page ii).

Status LEDs

The status LEDs help determine where any problems with your Studio Beam PC fixture may be originating. See Table 3-2 for a description of the five status LEDs.

Table 3-2. Status LEDs

LED	State	Problem Indication?	Description
Motor	solid green	No	The motor power supply is receiving adequate voltage.
	OFF	Yes	Fuse or power failure.
Lamp	solid yellow	No	The lamp power supply is receiving the proper voltage, and the lamp is on.
	OFF	Not necessarily[1]	The lamp is extinguished.
	flashing	Yes	The fixture is unable to strike the lamp.
5V	solid red	No	The logic board is receiving the required voltage.
	OFF	Yes	Fuse or power failure.
Transmit	solid yellow	No	Fixture is crossloading software to other fixtures on the link.
	OFF	Not necessarily[2]	No DMX 512 data is being transmitted.
	flashing	No	The fixture is in preset playback mode, and is the master fixture or the fixture is a slave fixture receiving an upload.
Receive	solid (flickering) green	No	The fixture is receiving data.
	OFF	Not necessarily[2]	No DMX 512 data is being received.

[1]If you shut down the lamp using a remote shutdown command, the lamp and the Lamp LED will shut off. However, if you have bad data cables, no data cables/ controller connected to the fixture, or the controller is off, the lamp and its LED will also be off. If correcting these problems does not turn the lamp on, see the next section.

[2]Neither the Transmit nor the Receive LED will be on until you have connected the fixture to a DMX 512-compatible controller using XLR data-grade cabling. If these LEDs remain OFF even though you have connected the fixture to a controller and are sending DMX 512 commands to the fixture, see the next section.

General Troubleshooting

To find solutions to general fixture problems not indicated by alphanumeric LED display error messages or status LEDs, see Table 3-3.

Table 3-3. General Troubleshooting

Problem	Probable Cause	Solution
Fixture will not power on.	• No power is connected. • Fuse is bad. • Power connectors are bad.	• Connect power to the fixture. • Check the power supply fuses (see “Replacing Fuses” on page 4-1). • Contact High End Systems customer service (see “Contacting High End Systems” on page ii).
Fixture functions but lamp does not strike.	• The lamp is bad. • The lamp is currently too hot to strike. • The Ignitor connection is loose.	• Replace the lamp (see “Replacing the Lamp” on page 4-7). • Provide correct power source voltage, power cord cap, and input voltage setting (see “Changing the Attachment Plug” on page 1-1). • Allow the lamp to cool, then restrike the lamp (see “Turning the Lamp On or Off (LAMP)” on page 2-39). • Contact High End Systems customer service (see “Contacting High End Systems” on page ii).
Lamp is dimmer than other fixtures.	• The lamp is bad or old. • The wrong type of lamp is installed. • The lamp is not optimized.	• Replace lamp with the specified type (see “Replacing the Lamp” on page 4-7). • Optimize the lamp (see “Optimizing the Lamp” on page 4-15).

Table 3-3. General Troubleshooting

Problem	Probable Cause	Solution
Lamp shuts off during operation.	• The lamp is bad. • The fixture has exceeded the maximum temperature. • The lamp socket is loose and causing arcing.	• Replace the lamp (see “Replacing the Lamp” on page 4-7). • Allow the fixture 5 to 10 minutes to cool, then attempt to strike the lamp (see “Turning the Lamp On or Off (LAMP)” on page 2-39). • Contact High End Systems customer service (see “Contacting High End Systems” on page ii).
Fixture will not home properly.	A sensor, driver, or motor is faulty.	Contact High End Systems customer service (see “Contacting High End Systems” on page ii).
Color system is not producing the correct color.	The fixture is not properly homed.	• Home the fixture (see “Control” on page 2-8 or “Homing the Fixture (HOME)” on page 2-39). • Contact High End Systems Customer Service (see “Contacting High End Systems” on page ii).
Fixture is not responding to controller commands or is producing unexpected results.	• The data cable is faulty. • No controller is attached to the link or the controller is not generating any output. • The fixture has an incorrect fixture number or DMX start channel. • The link was not terminated.	• Test and replace the data cables as necessary. • Verify that a controller is connected to the link and is generating output by sending commands to a known working device. • Verify the fixture number or DMX start channel does not overlap another fixture’s DMX start channel (see “Assigning a DMX Start Channel” on page 1-9). • Terminate the link (see “Obtaining a Terminator” on page 1-6).
Pan or Tilt position is off.	The pan and tilt is out of home.	• Home the fixture (see “Control” on page 2-8 or “Homing the Fixture (HOME)” on page 2-39). • Contact High End Systems customer service (see “Contacting High End Systems” on page ii).

Table 3-3. General Troubleshooting

Problem	Probable Cause	Solution
Display is not functioning.	• The LED display is set off. • The power supply fuse is bad. • The power connectors are loose. • The software upload was incomplete. • The logic board is bad.	• Turn the LED display on (see "Changing the Display Output (DSPL)" on page 2-30). • Check the power supply fuses (see "Replacing Fuses" on page 4-1). • At fixture start-up, press the two navigational arrow buttons simultaneously. The LED will display "UPLD" and hold the fixture in boot mode. Reload the latest version of the software. • Contact High End Systems customer service (see "Contacting High End Systems" on page ii).
Light output is low and/ or fuzzy.	The optical path is dirty.	Clean the internal glass components (see "Cleaning the Glass Components" on page 4-16).

Upload and Crossload Troubleshooting

To find solutions to problems encountered while uploading or crossloading new software versions, see Table 3-4.

Table 3-4. Upload and Crossload Troubleshooting

Problem	Probable Cause	Solution
Not all fixtures on the link are receiving the upload.	• Fixture(s) are off • Bad cable(s) • Cable(s) disconnected	• Power on the fixture(s) • Test and replace cable(s) as necessary • Reconnect cable(s)
Status Cue Lighting Console displays "Fixture could not erase Flash ROM."	• The XLR cable(s) disconnected • Bad cable(s) • The fixture's electrical circuitry is damaged	• Reconnect XLR cable(s) • Replace cable(s)

Table 3-4. Upload and Crossload Troubleshooting

Problem	Probable Cause	Solution
Status Cue Lighting Console displays "Warning: No response from Fixture xx (Link xx Address xx)."	• Status Cue was configured with a fixture at that address, but no fixtures were found there. • Controllers, serial data distributors, data line optoisolators, or fixture(s) using RS-422 communication is connected *before* Studio Beam PC fixtures on the link.	• If there is not a fixture at that address, ignore this message - if there is a fixture at that address, verify the fixture number/DMX start channel. • Check connections. • Check to ensure fixture is turned on. • Remove or bypass the offending devices from the data link or move them *after* the Studio Beam PC fixtures.
The fixture's LED displays: BOOT DIFF ERR	New software included a new boot code.	Accept and store the new boot code (see "Copying the Boot Code (BOOT)" on page 2-39).
Fixtures are not crossloading.	Controllers, serial data distributors, data line Optoisolators, or fixture(s) using RS-422 communication is connected *before* Studio Beam PC fixtures on the link.	Remove or bypass any offending devices from the data link or move them *after* the Studio Beam PC fixtures.

Updating Software

Updating Studio Beam PC fixture software is fast and easy. The latest versions of software are provided on the High End Systems web site, and are also available through High End Systems customer service (see "Contacting High End Systems" on page ii).

There are three ways to upload new software to your Studio Beam PC fixtures:

1. Attach a High End Systems Upload Dongle to your computer and upload the software to a Studio Beam PC fixture.

   To use a High End Systems Upload Dongle, you will need a 386-based (or faster) computer, MS DOS® version 3.3 (or later), and one MB of free disk

space. To obtain an Upload Dongle (with installation and operation instructions), see “Optional Accessories” on page intro-5.

2. Upload the new software to all Studio Beam PC fixtures on the link using the Status Cue lighting console.

   Refer to the *Status Cue User Manual* for the procedure used to upload software using a Status Cue lighting console.

3. Crossload software from one Studio Beam PC fixture that contains the new software to all other Studio Beam PC fixtures on the link. For more information, see “Crossloading Fixture Software (XLD)” on page 2-38.

Regardless of the method you chose to upload software, if you receive an error during the upload, see “Upload and Crossload Troubleshooting” on page 3-13.

Chapter 4
General Maintenance

This chapter includes information on replacing parts, optimizing the lamp, cleaning the fixture, and updating fixture software. Please note the warnings under each heading before servicing your fixture.

Warning: This fixture must be serviced by qualified personnel. The information listed in this chapter is intended to assist qualified personnel *only*.

Replacing Parts

Warnings: 1) Disconnect power before servicing.

2) Replace fuses with the specified type and rating only.

3) Equipment surfaces may reach temperatures up to 90° C (194° F). Allow the fixture to cool before handling.

Replacing Fuses

You will need:

- replacement fuse (see Table 4-1)
- wide tip, flat head screwdriver
- #2 Phillips-head screwdriver

There are two fuses located on the logic board, two fuses located on the filter board, and two fuses located on the motor power supply board.

To replace the fuses:

1. Electrically isolate the fixture. If the fixture has been operating, allow the fixture to cool before handling.
2. Determine which fuse to replace by referring to Table 4-1.

Table 4-1. Description and Function of Fuses

Fuse	Type and Rating	Size	Protects	Symptom of Failure
Logic Board F1	2.5 A, 250 V, Slow Blow only	5mm x 20mm	Pan motor and Tilt motor	Pan and Tilt will no longer function.
Logic Board F2	2.5 A, 250 V, Slow Blow only	5mm x 20mm	All other motors and fans	Wheels will no longer function, and fans will shut off.
Motor Power Supply Board F1	6.3 A, 250 V, Slow Blow only	5mm x 20mm	Motor Power Supply Board	Motors will not move, lamp is off, and fixture appears dead.
Motor Power Supply Board F2	6.3 A, 250 V, Fast Blow only	5mm x 20mm	Logic Board and motors	Motors will not move, lamp is off, and fixture appears dead.
Filter Board F1	12.5 A, 250 V, Fast Blow only	5mm x 20mm	Entire fixture	Motors will not move, lamp is off, and fixture appears dead.
Filter Board F2	12.5 A, 250 V, Fast Blow only	5mm x 20mm	Entire fixture	Motors will not move, lamp is off, and fixture appears dead.

3. Using a wide-tip, flat head screwdriver, loosen the two panel cover retaining screws on each side of the fixture (see Figure 4-1).

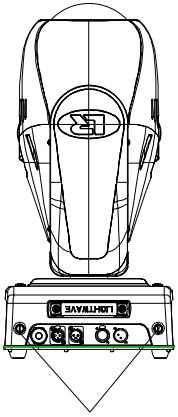


Figure 4-1. Loosen the two panel cover screws.

4. Remove the fixture's two panel covers by sliding them off the fixture (see Figure 4-2).

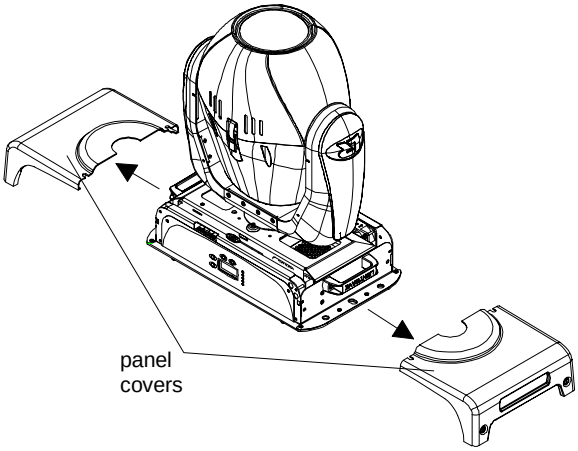


Figure 4-2. Remove the two panel covers.

5. If you want to access the **logic board fuses**, use a #2 Phillips-head screwdriver to loosen (*but do not remove*) the two LED display panel retaining screws (see Figure 4-3).

   If you want to access the **filter board fuses**, use a #2 Phillips-head screwdriver to loosen (*but do not remove*) the two filter panel retaining screws (see Figure 4-3).

   If you want to access the **motor power supply board fuses**, use a #2 Phillips-head screwdriver to loosen (*but do not remove*) *both* the LED display panel and the filter panel retaining screws (see Figure 4-3).

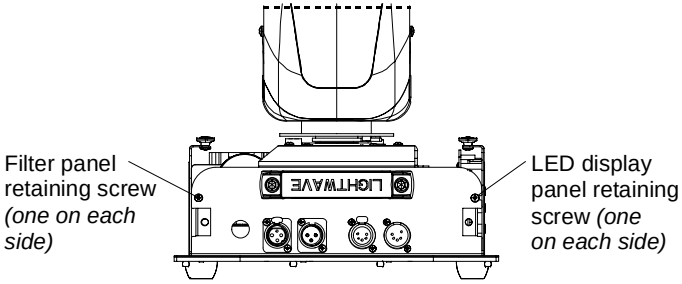


Figure 4-3. Loosen the two display panel retaining screws.

6. Gently lower the desired panel(s) (see Figure 4-4).

   If you want to access either the filter board or the logic board fuses, go on to step 8 now.

7. To access the motor power supply board only:

   a From the LED display panel side of the fixture, disconnect the motor power supply cable from the logic board (see Figure 4-5).

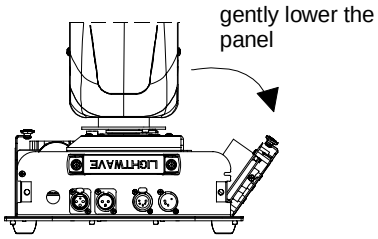


Figure 4-4. Lower the desired panel.

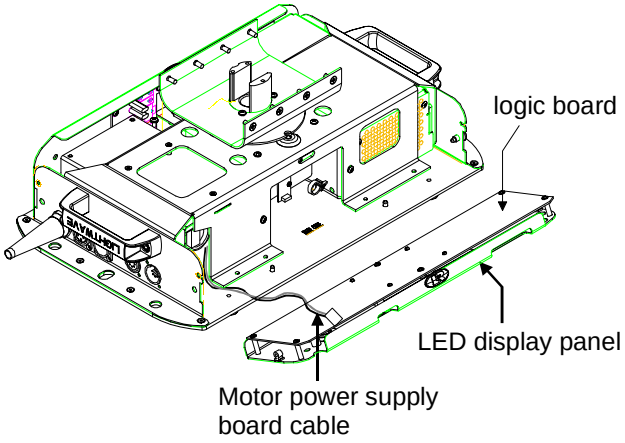


Figure 4-5. Remove the motor power supply cable from the logic board.

   b From the filter panel side of the fixture, disconnect the Ground (green wire), L1 (blue wire), and L2 (brown wire) from the motor power supply board (see Figure 4-6).

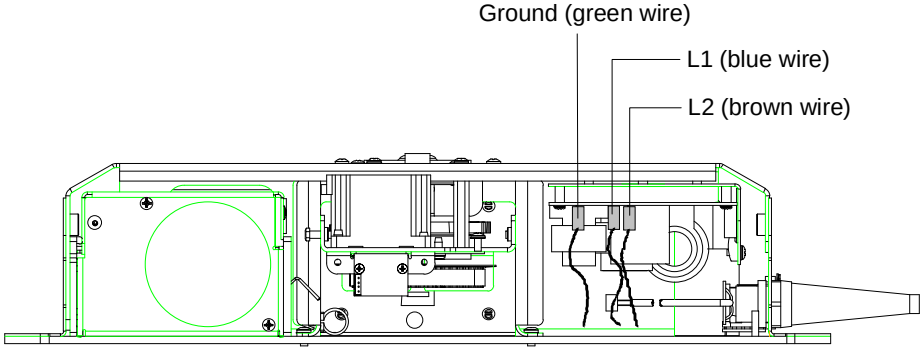


Figure 4-6. Remove the Ground, L1, and L2 wires.

c Using a #2 Phillips-head screwdriver, remove the three screws shown in Figure 4-7.

d Slide the motor power supply board assembly out of the fixture (see Figure 4-7).

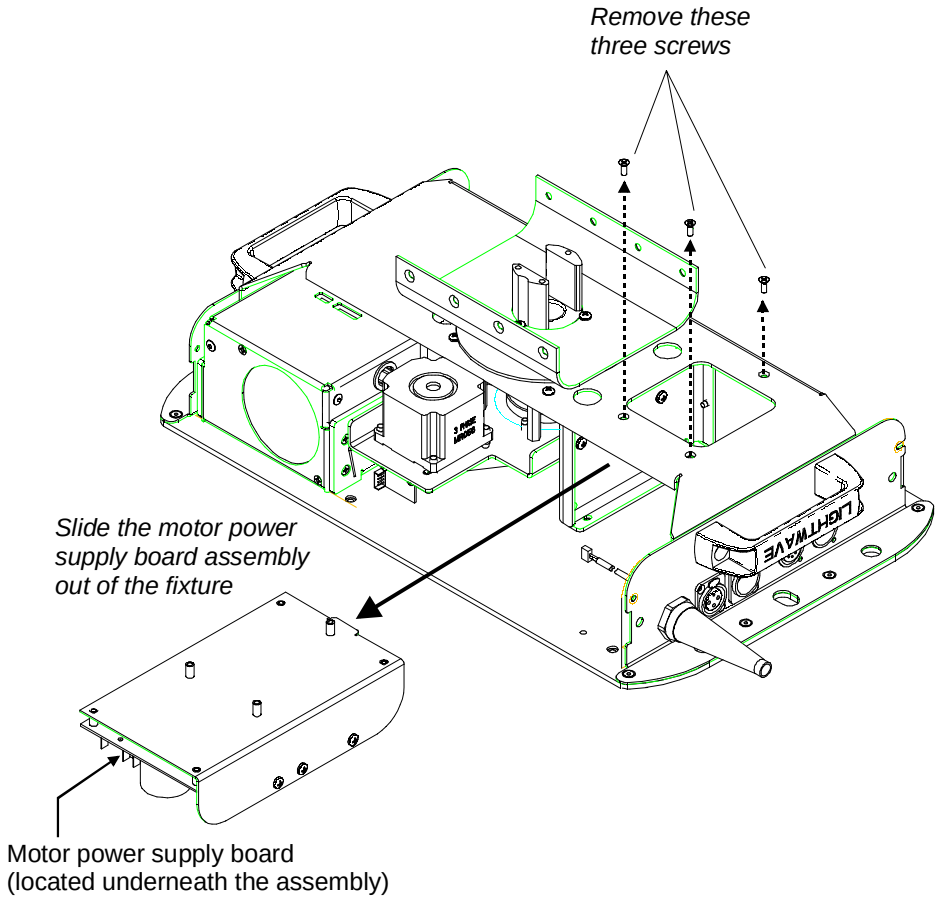
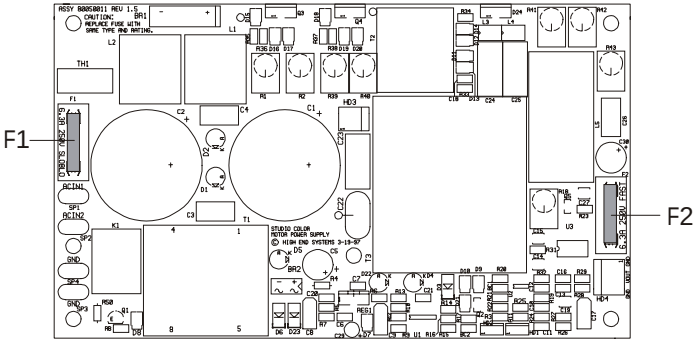

Remove these three screws
Slide the motor power supply board assembly out of the fixture
Motor power supply board (located underneath the assembly)
LIGHTWAVE

Figure 4-7. Remove the three screws and the motor power supply board assembly.

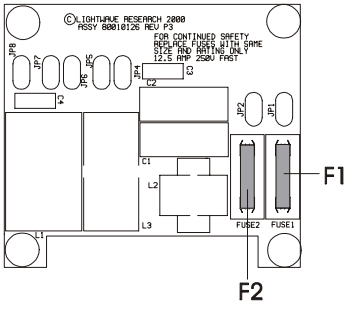
8. Locate the fuse to be replaced (see Figure 4-8).

Note: If you are replacing the fuses on the LED display panel or the filter panel, you must first remove the protective plastic covering over the fuse(s).

Motor Power Supply Board



Filter Board



Logic Board

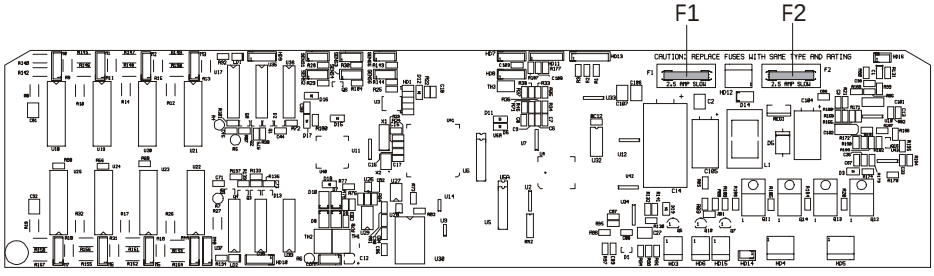


Figure 4-8. Fuse locations on the boards.

9. Replace the appropriate fuse(s) with a fuse of the same type and rating.

   Note: If applicable, reinstall the protective plastic covering over the fuse.

10. If you removed the motor power supply board assembly, replace the assembly in the fixture and reinstall the three screws removed in Step 7c above (see Figure 4-7).

    Reconnect the Ground, L1, and L2 wires to the motor power supply board (see Figure 4-6).

Reconnect the motor power supply cable to the logic board (see Figure 4-5).

11. Return the filter panel and/or the LED display panel to the original, upright position (see Figure 4-4) and tighten the display panel retaining screws (see Figure 4-3).
12. Replace the two panel covers (see Figure 4-2) and tighten the four panel cover retaining screws (see Figure 4-1).

Replacing the Lamp

Warnings: 1) Disconnect power before re-lamping or servicing.

2) An operating, unshielded MSD lamp emits ultraviolet and visible (UV-vis) radiation which could damage eyes and skin. Whenever you are working on or near an exposed lamp, wear protective eye gear. Never look directly at the lamp while the lamp is on.

3) Hot lamp may be an explosion hazard. Do not open for five minutes after switching off. Wear eye and hand protection when re-lamping.

4) Equipment surfaces may reach temperatures up to 90° C (194° F). Allow the fixture to cool before handling.

Caution: This equipment is designed for use with a Philips® MSR 700-watt, short arc lamp only. Use of any other type lamp may be hazardous and may void the warranty.

You will need:

- Philips® MSR 700-watt, short arc lamp
- protective gloves and eyewear
- wide tip, flat head screwdriver

To install/replace the lamp:

1. Electrically isolate the fixture. If the fixture has been operating, wait for the lamp to cool before handling.
2. Put on your protective eyewear and gloves.
3. Tilt the fixture's head to access the lamp cap (see Figure 4-9).

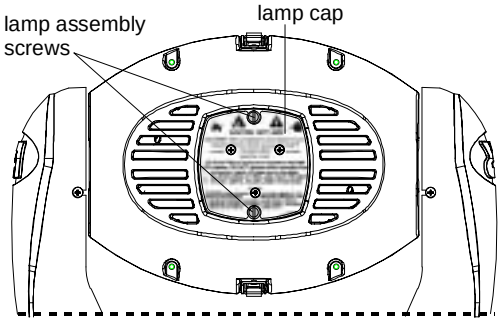


Figure 4-9. Lamp cap and lamp assembly screws.

4. Using a wide tip, flat head screwdriver, loosen (*but do not remove*) the two lamp assembly screws (see Figure 4-9).

5. Pull the lamp assembly straight out of the fixture (see Figure 4-10).

   The lamp assembly is connected to the fixture by lamp socket wires (see Figure 4-10). Support the lamp assembly while replacing the lamp. *Do not allow the lamp socket wires to support the weight of the lamp assembly.*

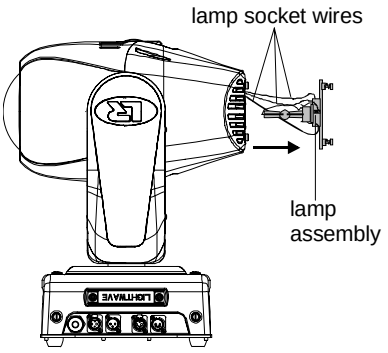


Figure 4-10. Remove the lamp assembly.

6. Holding the existing lamp by its ceramic base, carefully pull the lamp straight out of the lamp socket (see Figure 4-11).

Caution: Do not squeeze the lamp glass while removing the existing lamp from the socket. Lamp glass may shatter.

7. Remove all packaging materials from the new lamp. Holding the new lamp by its ceramic base, gently press the two base pins into the lamp socket until the lamp is firmly seated.

Caution: When handling the new lamp, avoid contact with the lamp glass. If the lamp glass is soiled by oil or dirt from skin, gloves, etc., clean the cold lamp glass with an alcohol wipe. A soiled lamp could overheat and burst, causing damage to the fixture.

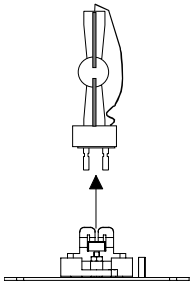


Figure 4-11. Remove the lamp from the lamp socket.

8. Reinsert the lamp assembly straight into the fixture.

   Make sure the lamp socket wires are not wrapped around the lamp or crimped while reinserting the lamp assembly.

9. Tighten the lamp assembly screws.

10. Reset the lamp hours to zero so that you can track the lamp life (see “Resetting Lamp Hours (L/RS)” on page 2-46).

11. Optimize the new lamp (see “Optimizing the Lamp” on page 4-15).

Replacing a Wheel

This section shows how to replace the cyan, magenta, yellow, or beam shaping (lenticular) wheel. You should replace the wheels if they are damaged or broken.

Warnings: 1) Disconnect power before servicing.

2) Equipment surfaces may reach temperatures up to 90° C (194° F). Allow the fixture to cool before handling.

You will need:

- #2 Phillips-head screwdriver
- 5/64" hex tool
- replacement wheel

To replace a Studio Beam PC wheel:

1. Remove the fixture's bezel by releasing the bezel latch on each side of the fixture (see Figure 4-12).

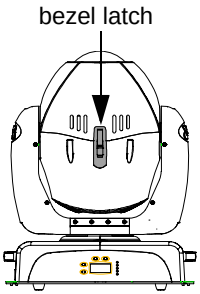


Figure 4-12. Remove the fixture's bezel.

2. Using a #2 Phillips-head screwdriver, remove the four screws that secure the lens assembly to the optical module (see Figure 4-13)

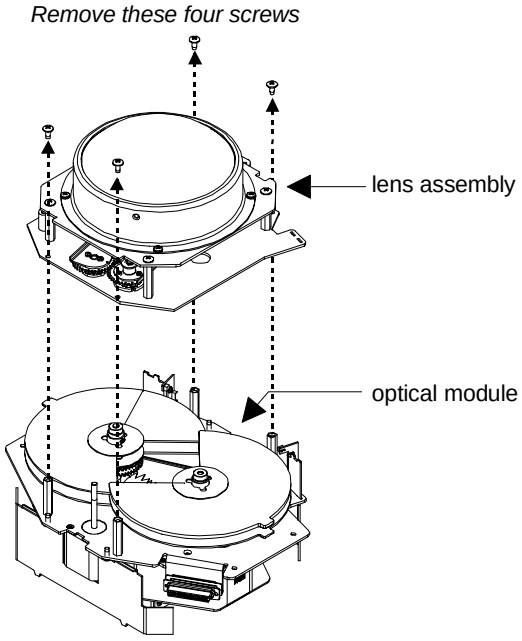


Figure 4-13. Remove the lens assembly from the optical module.

3. Remove the lens assembly (see Figure 4-13).
4. Using a 5/64" hex tool, loosen the set screw on the desired wheel hub, and remove the screws and washers as shown in Figure 4-14.

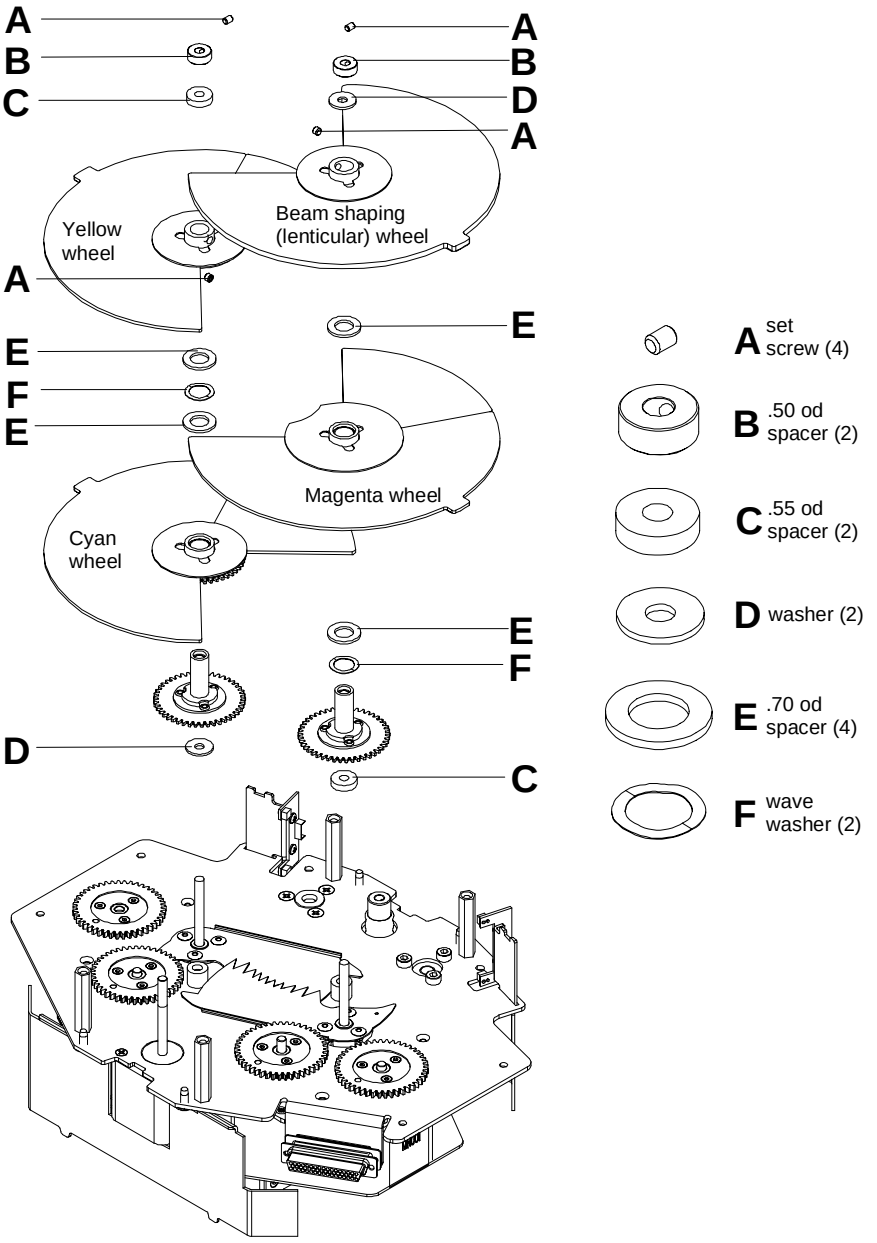


Figure 4-14. Location of the screws and washers on the wheels.

5. Pull the desired wheel up and off the shaft (see Figure 4-14).
6. If applicable, remove all pieces of broken glass in the fixture.
7. Place the new wheel on the open wheel shaft and replace the washers, spacers, and set screws as shown in Figure 4-14.
8. Replace the lens assembly and reinstall the four #2 Phillips-head screws (see Figure 4-13).
9. Replace the fixture's bezel and engage the two bezel latches (see Figure 4-12 on page 4-9).

Replacing the Lenses

This section shows how to replace the Pebble Convex (PC) lens and the aspheric (zoom) lens. You should replace the lenses if they are damaged or broken.

You can also completely remove the aspheric lens if you want to increase the fixture's lumens output. By removing the aspheric lens, the fixture will always have a 15° beam angle, but will increase its output by 2,000 lumens.

Warnings: 1) Disconnect power before servicing.

2) Equipment surfaces may reach temperatures up to 90° C (194° F). Allow the fixture to cool before handling.

Replacing the PC Lens

You will need:

- replacement PC lens
- #2 Phillips-head screwdriver

To replace the PC lens:

1. Electrically isolate the fixture. If the fixture has been operating, allow the fixture to cool before handling.
2. Remove the bezel by unlatching the two bezel latches (see Figure 4-12 on page 4-9).

3. Remove the four #2 Phillips-head lens screws and remove the lens by pulling it straight up from the optical assembly (see Figure 4-15).

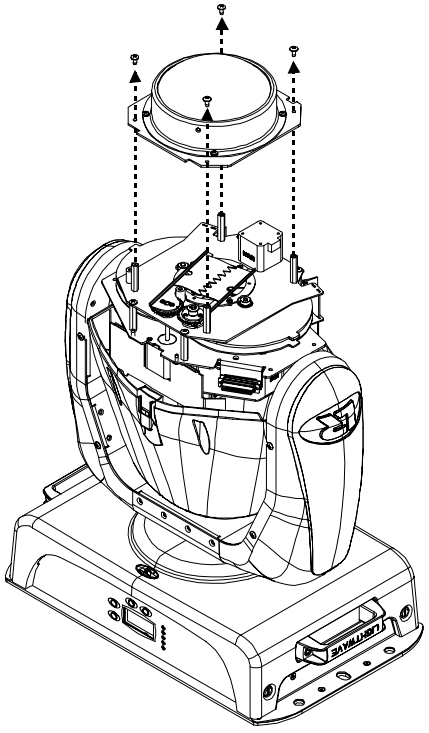


Figure 4-15. Remove the screws that secure the lens to the optical assembly.

4. Place the new lens on the optical assembly.

   Note: Before installing the new lens, you may need to clean it by using a soft, lint-free cotton cloth and a mild glass cleaning solution (*containing no ammonia*).

5. Replace and tighten the four #2 Phillips-head screws that secure the lens to the lens assembly.

6. Replace the bezel and engage the bezel latches.

Removing or Replacing the Aspheric Lens

You will need:

- replacement aspheric lens (if applicable)
- 1/16” allen wrench
- #2 Phillips-head screwdriver
- a soft, lint-free cotton cloth
- mild glass cleaning solution

To remove or replace the aspheric lens:

1. Electrically isolate the fixture. If the fixture has been operating, allow the fixture to cool before handling.
2. Remove the bezel by unlatching the two bezel latches (see Figure 4-12 on page 4-9).
3. Using a #2 Phillips-head screwdriver, loosen (*but do not remove*) the two plate screws shown in Figure 4-16. When the screws are loosened, remove the plate by pulling the large end of the plate's keyhole slots over the screw heads you just loosened.

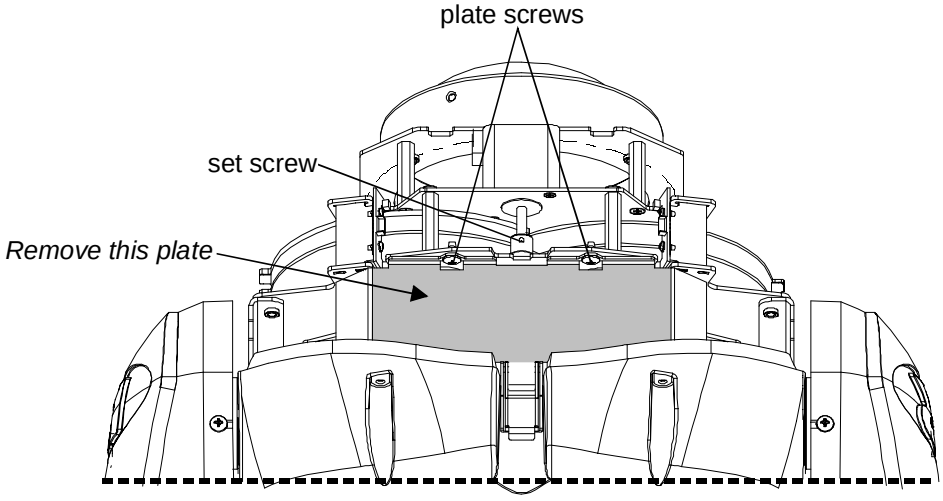


Figure 4-16. Loosen the screws that secure the optical assembly plate.

4. Using a 1/16" allen wrench, loosen (*but do not remove)* the set screw shown in Figure 4-16. When this set screw is loosened, you can access the aspheric lens assembly.

5. Using a #2 Phillips-head screwdriver, remove the two aspheric lens mounting screws (see Figure 4-17).

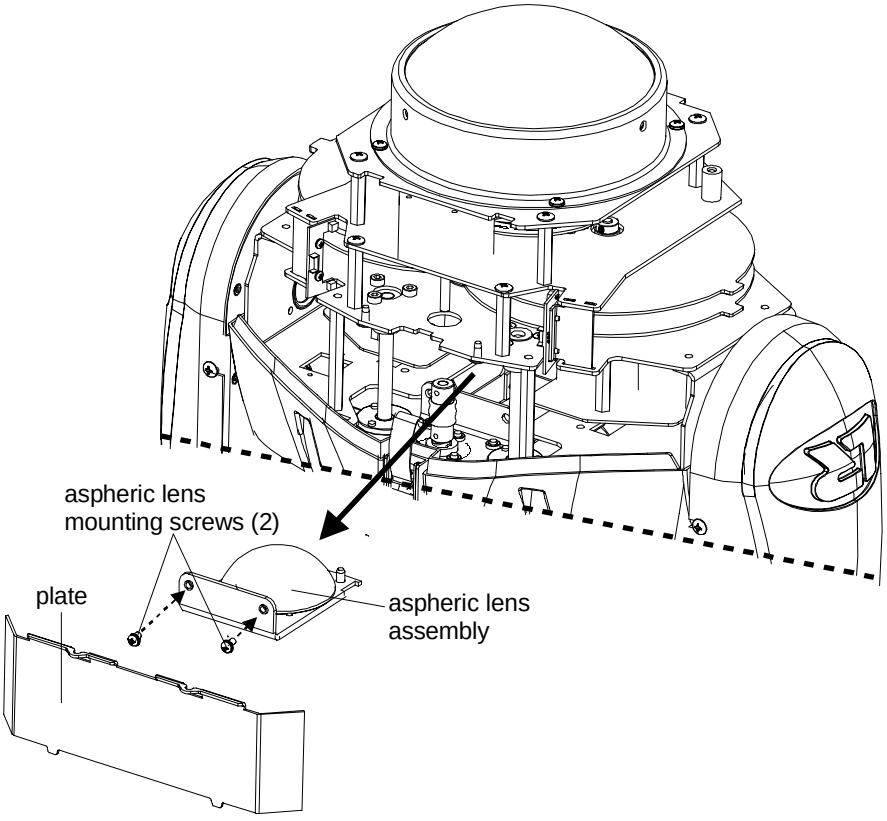


Figure 4-17. Remove the two aspheric lens mounting screws.

6. Remove the aspheric lens assembly as shown in Figure 4-17.

   If you are replacing the lens, install the new aspheric lens assembly and reinstall the aspheric lens mounting screws.

   Note: Before installing the new lens, you may need to clean it by using a soft, lint-free cotton cloth and a mild glass cleaning solution (*containing no ammonia*).

7. Replace the plate by sliding the large end of the keyhole slots over the two plate screws heads shown in Figure 4-16.
8. Using a #2 Phillips-head screwdriver, tighten the two plate screws to secure the plate to the optical assembly.
9. Replace the bezel and engage the bezel latches.

Optimizing the Lamp

You should optimize the lamp after you replace the lamp, or if you notice a "hot spot" of brightness anywhere other than the center of the light beam.

To complete the optimization procedure below, you can use either the fixture's on-board menu system or your DMX controller.

1. Orient the fixture so that the beam will project onto a flat, white surface at least 10 feet (3 m) away.

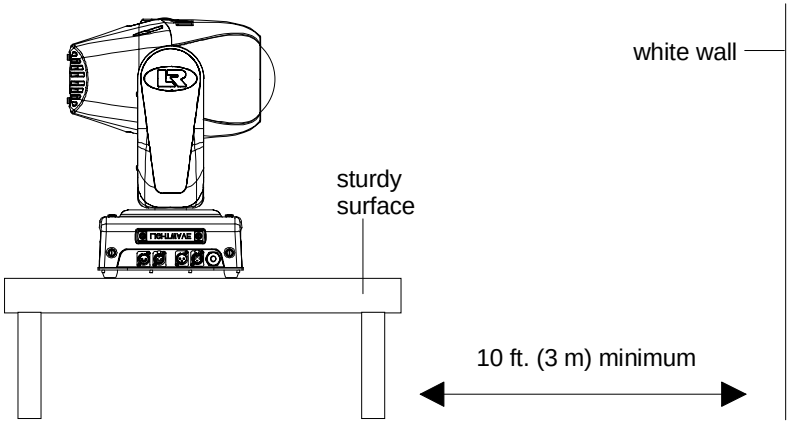


Figure 4-18. Orient the fixture for lamp optimization.

2. Turn the lamp on (see "Turning the Lamp On or Off (LAMP)" on page 2-39).
3. Make sure that the light beam is round and not oval.

   If necessary, adjust the pan and tilt construct values until the beam is round (see "Selecting a Pan Value (PAN)" on page 2-51 and "Selecting a Tilt Value (TILT)" on page 2-51).
4. Locate the three lamp optimization screws (see Figure 4-19).
5. Loosen the three lamp optimization screws.

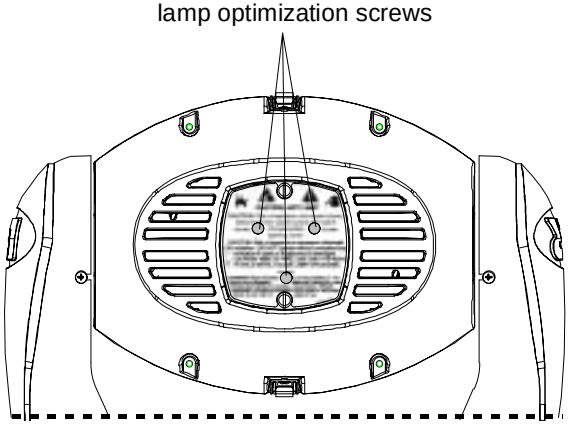


Figure 4-19. Lamp optimization screws.

6. Look at the wall where the beam is projected and use the three optimization screws to adjust the lamp's position within the fixture.
7. When the beam is at its maximum brightness and the light level is even across the beam (or the "hot spot" of brightness is at the center of the beam), retighten the three optimization screws to secure the lamp in its new position.

Cleaning the Glass Components

If the glass components of your fixture become dirty, clean them by following the procedure below.

Warnings: 1) Disconnect power before servicing.

2) Equipment surfaces may reach temperatures up to 90° C (194° F). Allow the fixture to cool before handling.

You will need:

- a soft, lint-free cotton cloth
- mild glass cleaning solution (containing no ammonia)

To clean the internal components:

1. Electrically isolate the fixture. If the fixture has been operating, allow the fixture to cool before handling.
2. Remove the bezel by releasing the two bezel latches (see Figure 4-12 on page 4-9).
3. Clean the color wheels, aspheric lens, and PC lens using a mild glass cleaner (containing no ammonia) and a soft, lint-free cotton cloth.

   To access the color wheels, see "Replacing a Wheel" on page 4-9. To access the aspheric lens, see "Removing or Replacing the Aspheric Lens" on page 4-12. To access the PC lens, see "Replacing the PC Lens" on page 4-11.
4. Replace the bezel and engage the two bezel latches.

Appendix A
Start Channels, Macros, and MSpeed Times

DMX Start Channels

Table A-1 lists the DMX start channels for Studio Beam PC fixtures. This table assumes that the fixtures are all assigned to the same link, one after another, and that all fixtures use the *same number of channels* (i.e. only Studio Beam PC fixtures (or other devices using 16 DMX channels) on the link.

Table A-1. DMX Start Channels

Fixture Order in the Link	DMX Start Channel	Fixture Order in the Link	DMX Start Channel
1	1	17	257
2	17	18	273
3	33	19	289
4	49	20	305
5	65	21	321
6	81	22	337
7	97	23	353
8	113	24	369
9	129	25	385
10	145	26	401
11	161	27	417
12	177	28	433
13	193	29	449
14	209	30	465
15	225	31	481
16	241	32	497

MSpeed Times

Table A-2 lists the MSpeed (motor) movement times and their corresponding DMX controller values. If you have a numeric-type controller, use the Value Decimal (dec.) column. If you have a fader-type controller, use the Value Percentage (%) column. If your controller allows you to program hex values, use the Value (hex) column.

The values in Table A-2 may vary slightly depending on your controller's rounding convention.

Table A-2. MSpeed Times

Time (sec.)	Value (dec.)	Value (%)	Value (hex)	Time (sec.)	Value (dec.)	Value (%)	Value (hex)
0.15	255	100	FFh	2.86	229	90	E5h
0.15	254	100	FEh	3.07	228	89	E4h
0.17	253	99	FDh	3.29	227	89	E3h
0.19	252	99	FCh	3.52	226	89	E2h
0.21	251	98	FBh	3.76	225	88	E1h
0.25	250	98	FAh	4.00	224	88	E0h
0.29	249	98	F9h	4.25	223	87	DFh
0.35	248	97	F8h	4.52	222	87	DEh
0.41	247	97	F7h	4.78	221	87	DDh
0.47	246	96	F6h	5.06	220	86	DCh
0.55	245	96	F5h	5.34	219	86	DBh
0.63	244	96	F4h	5.64	218	85	DAh
0.73	243	95	F3h	5.94	217	85	D9h
0.83	242	95	F2h	6.25	216	85	D8h
0.94	241	95	F1h	6.56	215	84	D7h
1.05	240	94	F0h	6.89	214	84	D6h
1.18	239	94	EFh	7.22	213	84	D5h
1.31	238	93	EEh	7.56	212	83	D4h
1.45	237	93	EDh	7.91	211	83	D3h
1.60	236	93	ECh	8.27	210	82	D2h
1.75	235	92	EBh	8.63	209	82	D1h
1.92	234	92	EAh	9.00	208	82	D0h
2.09	233	91	E9h	9.39	207	81	CFh
2.27	232	91	E8h	9.77	206	81	CEh
2.46	231	91	E7h	10.17	205	80	CDh
2.66	230	90	E6h	10.58	204	80	CCh

Table A-2. MSpeed Times

Time (sec.)	Value (dec.)	Value (%)	Value (hex)	Time (sec.)	Value (dec.)	Value (%)	Value (hex)
10.99	203	80	CBh	30.49	168	66	A8h
11.41	202	79	CAh	31.19	167	65	A7h
11.84	201	79	C9h	31.90	166	65	A6h
12.28	200	78	C8h	32.62	165	65	A5h
12.72	199	78	C7h	33.34	164	64	A4h
13.17	198	78	C6h	34.08	163	64	A3h
13.63	197	77	C5h	34.82	162	64	A2h
14.10	196	77	C4h	35.57	161	63	A1h
14.58	195	76	C3h	36.33	160	63	A0h
15.07	194	76	C2h	37.09	159	62	9Fh
15.56	193	76	C1h	37.87	158	62	9Eh
16.06	192	75	C0h	38.65	157	62	9Dh
16.57	191	75	BFh	39.44	156	61	9Ch
17.09	190	75	BEh	40.23	155	61	9Bh
17.61	189	74	BDh	41.04	154	60	9Ah
18.14	188	74	BCh	41.85	153	60	99h
18.68	187	73	BBh	42.68	152	60	98h
19.23	186	73	BAh	43.50	151	59	97h
19.79	185	73	B9h	44.34	150	59	96h
20.36	184	72	B8h	45.19	149	58	95h
20.93	183	72	B7h	46.04	148	58	94h
21.51	182	71	B6h	46.90	147	58	93h
22.10	181	71	B5h	47.77	146	57	92h
22.70	180	71	B4h	48.65	145	57	91h
23.30	179	70	B3h	49.54	144	56	90h
23.92	178	70	B2h	50.43	143	56	8Fh
24.54	177	69	B1h	51.33	142	56	8Eh
25.17	176	69	B0h	52.24	141	55	8Dh
25.80	175	69	AFh	53.16	140	55	8Ch
26.45	174	68	AEh	54.09	139	55	8Bh
27.10	173	68	ADh	55.02	138	54	8Ah
27.76	172	67	ACh	55.96	137	54	89h
28.43	171	67	ABh	56.91	136	53	88h
29.11	170	67	AAh	57.87	135	53	87h
29.80	169	66	A9h	58.84	134	53	86h

Table A-2. MSpeed Times

Time (sec.)	Value (dec.)	Value (%)	Value (hex)	Time (sec.)	Value (dec.)	Value (%)	Value (hex)
59.81	133	52	85h	98.95	98	38	62h
60.79	132	52	84h	100.22	97	38	61h
61.78	131	51	83h	101.49	96	38	60h
62.78	130	51	82h	102.77	95	37	5Fh
63.79	129	51	81h	104.05	94	37	5Eh
64.80	128	50	80h	105.35	93	36	5Dh
65.82	127	50	7Fh	106.65	92	36	5Ch
66.85	126	49	7Eh	107.96	91	36	5Bh
67.89	125	49	7Dh	109.28	90	35	5Ah
68.94	124	49	7Ch	110.61	89	35	59h
69.99	123	48	7Bh	111.94	88	35	58h
71.05	122	48	7Ah	113.28	87	34	57h
72.13	121	47	79h	114.63	86	34	56h
73.20	120	47	78h	115.99	85	33	55h
74.29	119	47	77h	117.36	84	33	54h
75.38	118	46	76h	118.73	83	33	53h
76.49	117	46	75h	120.12	82	32	52h
77.60	116	45	74h	121.51	81	32	51h
78.71	115	45	73h	122.91	80	31	50h
79.84	114	45	72h	124.31	79	31	4Fh
80.98	113	44	71h	125.73	78	31	4Eh
82.12	112	44	70h	127.15	77	30	4Dh
83.27	111	44	6Fh	128.58	76	30	4Ch
84.43	110	43	6Eh	130.02	75	29	4Bh
85.59	109	43	6Dh	131.47	74	29	4Ah
86.77	108	42	6Ch	132.92	73	29	49h
87.95	107	42	6Bh	134.39	72	28	48h
89.14	106	42	6Ah	135.86	71	28	47h
90.34	105	41	69h	137.34	70	27	46h
91.55	104	41	68h	138.82	69	27	45h
92.76	103	40	67h	140.32	68	27	44h
93.98	102	40	66h	141.82	67	26	43h
95.21	101	40	65h	143.33	66	26	42h
96.45	100	39	64h	144.85	65	25	41h
97.70	99	39	63h	146.38	64	25	40h

Table A-2. MSpeed Times

Time (sec.)	Value (dec.)	Value (%)	Value (hex)	Time (sec.)	Value (dec.)	Value (%)	Value (hex)
147.92	63	25	3Fh	197.70	33	13	21h
149.46	62	24	3Eh	199.48	32	13	20h
151.01	61	24	3Dh	201.28	31	12	1Fh
152.57	60	24	3Ch	203.08	30	12	1Eh
154.14	59	23	3Bh	204.88	29	11	1Dh
155.71	58	23	3Ah	206.70	28	11	1Ch
157.30	57	22	39h	208.52	27	11	1Bh
158.89	56	22	38h	210.36	26	10	1Ah
160.49	55	22	37h	212.19	25	10	19h
162.09	54	21	36h	214.04	24	9	18h
163.71	53	21	35h	215.90	23	9	17h
165.33	52	20	34h	217.76	22	9	16h
166.96	51	20	33h	219.63	21	8	15h
168.60	50	20	32h	221.51	20	8	14h
170.25	49	19	31h	223.40	19	7	13h
171.91	48	19	30h	225.30	18	7	12h
173.57	47	18	2Fh	227.20	17	7	11h
175.24	46	18	2Eh	229.11	16	6	10h
176.92	45	18	2Dh	231.03	15	6	0Fh
178.61	44	17	2Ch	232.96	14	5	0Eh
180.30	43	17	2Bh	234.90	13	5	0Dh
182.01	42	16	2Ah	236.84	12	5	0Ch
183.72	41	16	29h	238.79	11	4	0Bh
185.44	40	16	28h	240.75	10	4	0Ah
187.17	39	15	27h	242.72	9	4	09h
188.90	38	15	26h	244.70	8	3	08h
190.65	37	15	25h	246.68	7	3	07h
192.40	36	14	24h	248.68	6	2	06h
194.16	35	14	23h	250.68	5	2	05h
195.92	34	13	22h	252.68	4	2	04h

Macro Descriptions

Table A-3 lists a description for each for each factory-programmed macro in Studio Beam PC fixtures and shows which constructs are used or affected by each macro.

Table A-3. Macro Descriptions

Macro	Description	Constructs Used	Macro affected by construct value change
1	Odd-numbered fixtures on the link perform a “lazy eight” movement, followed by even-numbered fixtures.	• pan • tilt • MSpeed	The pan and tilt construct values scale the “lazy eight” movement range.
2	Sequentially-numbered fixtures (in groups of two) perform a “ballyhoo” movement.	• pan • tilt • MSpeed	The pan and tilt construct values scale the “ballyhoo” movement range.
3	Sequentially-numbered fixtures (in groups of four) perform a tilt “wave” movement.	• tilt • shutter • MSpeed	
4	Odd-numbered fixtures on the link perform a pan “lighthouse” movement, followed by even-numbered fixtures.	• pan • shutter • MSpeed	
5	Odd-numbered fixtures perform a “swoop” movement, followed by even-numbered fixtures.	• pan • tilt • dim	
6	Sequentially-numbered fixtures (in groups of four) perform a “swoop” movement.	• pan • tilt • dim	
7	Odd-numbered fixtures perform a slow ramp open and ramp shut dim movement, followed by even-numbered fixtures.	dim	
8	Sequentially-numbered fixtures (in groups of four) perform a slow ramp open and ramp shut dim movement.	dim	
9 - 32	*Reserved for future use.*		

Note: Information on new macros will be posted on the High End Systems web site and included with new software releases. The High End

Systems web site address is listed in “Contacting High End Systems” on page ii.

Appendix B Important Safety Information

Warning: For Continued Protection Against Fire

1. This equipment is designed for use with a Philips 700 watt, GY 9.5 base, metal halide lamp only. Use of any other type lamp may be hazardous and may void the warranty.
2. Do not mount on a flammable surface.
3. Maintain minimum distance of 1.0 meter (3.28 feet) from combustible materials.
4. Replace fuses only with the specified type and rating.
5. Observe minimum distance to lighted objects of 2.0 meter (6.56 feet).
6. This equipment for connection to branch circuit having a maximum overload protection of 20 A.

Warning: For Continued Protection Against Electric Shock

1. If this equipment was received without a line cord plug, attach the appropriate line cord plug according to the following code:
   - brown–live
   - blue–neutral
   - green/yellow–earth
2. As the colours of the cores in the mains lead of this equipment may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:
   - the core which is coloured green and yellow must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol ⏚, or coloured green or green and yellow.
   - the core which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.
   - the core which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.
3. Class I equipment. This equipment must be earthed.
4. Equipment suitable for dry locations only. Do not expose this equipment to rain or moisture.
5. Disconnect power before re-lamping or servicing.
6. Refer servicing to qualified personnel; no user serviceable parts inside.

Warning: For Continued Protection Against Exposure To Excessive Ultraviolet (UV) Radiation

1. Do not operate this equipment without complete lamp enclosure in place or if shields, lenses, or ultraviolet screens are damaged.
2. Change shields, lenses, or ultraviolet screens if they have become visibly damaged to such an extent that their effectiveness is impaired, for example by cracks or deep scratches.
3. Never look directly at the lamp while lamp is on.

Warning: For Continued Protection Against Injury To Persons

1. Use secondary safety cable when mounting this fixture.
2. Caution: hot lamp may be an explosion hazard. Do not open for 5 minutes after switching off. Wear eye and hand protection when re-lamping.
3. Equipment surfaces may reach temperatures up to 90° C (194° F). Allow 5 minutes for cooling before handling.
4. Change the lamp if it becomes damaged or thermally deformed.

Appendice B
Importantes Informations Sur La Sécurité

Mise En Garde: Pour Une Protection Permanente Contre Les Incendies

1. Cet appareil est conçu uniquement pour une lampe métallique à halogène Philips, de 700 watts, à base GY 9.5. Son utilisation avec tout autre type de lampe peut être dangereuse et annuler la garantie.
2. Ne pas monter les lampes sur une surface inflammable.
3. Maintenir à une distance minimum de 1.0 mètre de matières inflammables.
4. Ne remplacer les fusibles qu'avec des modèles et valeurs assignées recommandés.
5. Respecter une distance minimum de 2.0 mètre par rapport aux objets éclairés.
6. Cet appareil de connection au circuit comporte une protection contre les surcharges de 20 A.

Mise En Garde: Pour Une Protection Permanente Contre Les Chocs Électriques

1. Si cet équipement est livré sans prise de cable, veuillez connecter la prise de cable correcte selon le code suivant:
   - marron - phase
   - bleu - neutre
   - vert/jaune - terre
2. Débrancher le courant avant de changer les lampes ou d'effectuer des réparations.

3. Cet équipement doit être uniquement utilisé dans des endroits secs. Ne pas l'exposer à la pluie ou l'humidité.
4. À l'intérieur de l'équipement il n'y a pas de pièces remplaçables par l' utilisateur. Confiez l'entretien à un personnel qualifié.
5. Equipement de Classe I. Cet équipement doit être mis à la terre.

Mise En Garde: Pour Une Protection Permanente Contre Des Expositions Excessives Aux Rayons Ultra Violets (UV)

1. Ne pas utiliser cet appareil si le boîtier de la lampe n'est pas complètement fixé ou si les blindages, lentilles, ou écrans ultraviolets sont endommagés.
2. Changer les blindages ou les écrans ultraviolets s'ils sont visiblement endommagés au point que leur efficacité aient été altérée, par exemple par des fissures ou de profondes égratignures.
3. Ne jamais regarder directement la lampe quand celle ci est allumée.

Mise En Garde: Pour Une Protection Permanente Contre Les Blessures Corporelles

1. Lors de l'assemblage, utiliser un câble de sécurité secondaire.
2. AVERTISSEMENT: les lampes chaudes comportent un risque d'explosion. Après l'avoir éteinte, attendre 5 minutes avant de la dégager. Lors du remplacement de la lampe, une protection des yeux et des mains est requise.
3. Les surfaces de l'appareil peuvent atteindre des températures de 90 C. Laisser refroidir pendant 5 minutes avant la manipulation.
4. Changer la lampe si elle est endommagée ou thermiquement déformée.

Anhang B
Wichtige Hinweise Für Ihre Sicherheit

Warnung: Zum Schutz Vor Brandgefahr

1. Dieses Gerät ist nur für den Gebrauch mit einer 700-Watt, Philips, Metall-Halogen-Lampe mit GY 9.5-Sockel konzipiert. Der Gebrauch irgend eines anderen Lampentyps könnte Sie gefährden und Ihre Garantie außer Kraft setzen.
2. Das Gerät nie auf einer feuergefährlichen Fläche montieren.
3. Stets einen Mindestabstand von 1 Meter zu brennbaren Materialien einhalten.
4. Zum Ersatz nur Sicherungen verwenden, die dem vorgeschriebenen Typ und Nennwert entsprechen.
5. Einen Mindestabstand von 2 Meter zu den angestrahlten Objekten einhalten.
6. Dieses Gerät darf nur an eine Zweigleitung mit einem Überlastungsschutz von höchstens 20 A angeschlossen werden.

Warnung: Zum Schutz Gegen Gefährliche Körperströme

1. Wenn dieses Gerät ohne einen Netzkabelstecker erhalten wurde, ist der entsprechende Netzkabelstecker entsprechend dem folgenden Code anzubringen:
   - Braun - Unter Spannung stehend
   - Blau - Neutral
   - Grün/Gelb - Erde
2. Vor dem Austauschen von Lampen oder vor Wartungsarbeiten stets den Netzstecker ziehen.
3. Diese Geräte sind nur zum Einbau in trockenen Lagen bestimmt und müssen vor Regen und Feuchtigkeit geschützt werden.
4. Servicearbeiten sollten nur von Fachpersonal ausgeführt werden. Das Gerät enthält keine wartungsbedürftigen Teile.
5. Dieses Gerät gehört zur Klasse I. Dieses Gerät muß geerdet werden.

Warnung: Zum Schutz Gegen Übermässige Ultraviolett (UV)-Bestrahlung

1. Benutzen Sie dieses Gerät nur, wenn das komplette Lampengehäuse fest eingebaut ist; ebenfalls dürfen keine der Schutzabdeckungen, Linsen oder der UV-Schutz Beschädigungen aufweisen.
2. Die Schutzabdeckungen, Linsen und der UV-Schutz müssen ausgewechselt werden, wenn sie sichtlich dermaßen beschädigt sind, daß sie ihre Wirksamkeit einbüßen, z.B. infolge von Rissen oder tiefen Kratzern.
3. Nie direkt in die eingeschaltete Lampe schauen.

Warnung: Zum Schutz Vor Verletzungen

1. Verwenden Sie bei der Installation des Beleuchtungskörpers ein zusätzliches Sicherheitskabel.
2. VORSICHT: Bei einer heiße Lampe besteht Explosionsgefahr. Nach dem Abschalten der Netzspannung sollten Sie etwa 5 Minuten warten, bevor Sie das Lampengehäuse öffnen. Schützen Sie beim Auswechseln der Lampen Ihre Hände und tragen Sie eine Schutzbrille.
3. Die Oberflächen des Gerätes können Temperaturen bis zu 90 C erreichen. Vor dem Anfassen stets 5 Minuten lang abkühlen lassen.
4. Falls die Lampe beschädigt oder durch Wärmeeinwirkung verformt ist, muß sie ausgewechselt werden.

Apéndice B
Información Importante De Seguridad

Advertencia: Para Protección Continua Contra Incendios

1. Este equipo está diseñado para utilizarse únicamente con la lámpara de haluro metálico Philips, de 700 vatios y base GY 9.5. El uso de cualquier otro tipo de lámpara puedá resultar peligroso, y puedá anular la garantía.
2. No monte el equipo sobre una superficie inflamable.
3. Mantenga una distancia mínima de materiales combustibles de 1,0 metro.
4. Cambie los fusibles únicamente por otros que sean del tipo y la clasificación especificadas.
5. Guarda una distancia mínima a objetos iluminados de 2,0 metro.
6. Este equipo debe conectarse a un circuito que tenga una protección máxima contra las sobrecargas de 20 A.

Advertencia: Para La Protección Continua Contra Electrocuciones

1. Si se recibió este equipo sin el enchufe de alimentacion, monte usted el enchufe correcto según el clave siguente:
   - moreno - vivo
   - azul - neutral
   - verde/amarillo - tierra
2. Desconecte el suministro de energía antes de recambiar lámparas o prestar servicio de reparación.
3. Questa apparecchiatura e' da usarsi in ambienti secchi. Non e' da essere esposta ne alla pioggia ne all' umidita'.
4. Derive el servicio de reparación de este equipo al personal calificado. El interior no contiene repuestos que puedan ser reparados por el usuario.
5. Equipo de Clase I. Este equipo debe conectarse a la tierra.

Advertencia: Para Protección Continua Contra La Exposición A Radiación Ultravioleta (UV) Excesiva

1. No opere este equipo sin tener colocada en su lugar la caja protectora completa de la lámpara o bien, si el blindaje, los lentes o las pantallas ultravioletas están dañadas.
2. Cambie el blindaje, los lentes o las pantallas ultravioleta si nota una avería visible, a tal grado que su eficacia se vea comprometida. Por ejemplo, en el caso de grietas o rayaduras profundas.
3. Jamás mire directamente a la lámpara en tanto ésta esté encendida.

Advertencia: Para Protección Continua Contra Lesiones Corporales

1. Al montare questa apparechiatura, usare un secondo cavo di sicurezza.
2. Precaución: una lámpara caliente puede constituir un peligro de explosión. No la abra por 5 minutos luego de haberla apagado. Lleve puestos, un protector ocular, y guantes al recambiar lámparas.
3. Las superficies del equipo pueden alcanzar temperaturas máximas de 90 grados centígrados. Deje que se enfríen por 5 minutos antes de tocarlas.
4. Cambie la lámpara si ésta se avería o deforma por acción térmica.

Appendice B
Importanti Informazioni Di Sicurezza

Avvertenza: Per Prevenire Incendi

1. Questa apparecchiatura è stata progettata per l'uso esclusivo con lampada a sali metallici Philips da 700 watt, base GY 9.5. L'uso di qualsiasi altro tipo di lampada può essere pericoloso e può annullare la garanzia.
2. Da non montare sopra una superficie infiammabile.
3. Mantenere l' apparecchio a un minimo di 1.0 metri (3.28 piedi) di distanza dai materiali combustibili.
4. Rimpiazare i fusibili usando soltanto quelli del tipo e della taratura adatta.
5. Mantenere una distanza minima di 2.0 metri (6.56 piedi) dagli oggetti accesi.
6. Questa apparecchiatura e' da collegarsi ad un circuito con una protezzione da sovraccarico massima di 20 amperes.

Avvertenza: Per Prevenire Le Scosse Elettriche

1. Se questa apparecchiatura è stata consegnata senza una spina del cavo di alimentazione, collegare la spina appropriata del cavo di alimentazione in base ai seguenti codici:
   - marrone - sotto tensione
   - blu - neutro
   - verde/giallo - terra
2. Disinnestare la corrente prima di cambiare la lampadina o prima di eseguire qualsiasi riparazione.
3. Este equipo se adecua a lugares secos solamente. no lo exponga a la lluvia o humedad.
4. Per qualsiasi riparazione rivolgersi al personale specializzato. L' utente non deve riparare nessuna parte dentro l' unita'.
5. Aparecchio di Classe I. Questa apparecchiatura deve essere messa a terra.

Avvertenza: Per Proteggersi Contro Le Radiazioni Dei Raggi Ultravioletti

Non usare questa apparecchiatura se il sistema di chiusura della lampadina non e' completo o se gli scudetti, le lenti, o gli schermi ultravioletti si sono visibilmente danneggiati di maniera tale che la loro efficacia sia stata ridotta --- ad esempio, se vi sono visibili spaccature o graffi profondi. Mai guardare direttamente verso la lampadina quando sia accesa.

Avvertenza: Per Non Ferire Ad Altre Persone

1. Use cable secundario de seguridad al montar este aparato.
2. Avvertenza: la lampadina calda potrebbe esplodere. Spegnerla per 5 minuti prima di aprirla. Usare protezioni per le mani e per gli occhi prima di cambiare la lampadina.
3. Le superfici della apparecchiatura possono arrivare a temperature di 90 gradi centrigradi (194 gradi f). Aspettare 5 minuti prima di maneggiare.
4. Cambiare la lampadina se si danneggia o se si e' deformata dovuto alle alte temperature.

Vigtig Sikkerhedsinformation

Advarsel: Beskyttelse mod elektrisk chock.

VIGTIGT!

LEDEREN MED GUL/GROEN ISOLATION MAA KUN TILSLUTTES KLEMME MAERKET ELLER .

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